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No. 1.

ORIGINAL COMMUNICATIONS.

ECTOPIC GESTATION :

ITS VARIETIES, SYMPTOMS, AND TREATMENT DURING ITS SEVERAL STAGES.¹

BY

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Introductory.—During the past few years I have carefully recorded the previous symptoms, diagnosis, and treatment of every case in my practice requiring an abdominal operation. I have at various times put on paper the views I held regarding the symptoms, diagnosis, and treatment of ectopic gestation. In the present paper it has been my endeavor to unite them in one article. In perusing the literature of the subject I endeavored three years ago to systematize the symptoms by tabulating all the cases relating to the subject recorded in the periodicals within my reach. The paragraphs that especially attracted my attention while reading the views of different authors were marked, and many of them are embodied in the present paper. I have been forced

¹ Read at the meeting of the American Association of Obstetricians and Gynecologists held at St. Louis, Mo., September 20th, 21st, and 22d, 1892.

to adopt this method in order to support or criticise the views of others and to enable the reader to judge for himself.

It has been said that if a man dies and leaves behind him one undying thought or deed, he has accomplished more than the large majority of his fellows. When, with the cruel onward march of time, the grim reaper Death shall have laid low that surgical giant, Mr. Lawson Tait, there will remain behind him a deed, a surgical procedure, that will eclipse all other surgical procedures of the present century, that will accord to him undying fame. Barnes, with the voice of a prophet, prophesied the advent of a Tait. Many approved and suggested abdominal section as the only method by which we could hope to save a poor woman rapidly sinking from the hemorrhage from a ruptured tubal gestation, but they lacked either the courage or the opportunity to act upon their views. Tait possessed the one and soon found the other, and the benefit to suffering humanity in this generation alone has been very great. This benefit reaches further than the superficial observer imagines. By this operative procedure we have had the veil more frequently lifted and have been brought more closely into contact with abdominal and pelvic diseases. Conditions previously almost unknown have been carefully studied. When Tait first said, "When I find my patient in danger of death from conditions within the abdomen which do not seem to be clearly of a malignant nature, but a correct diagnosis of which is impossible, I open the abdomen and at once make the diagnosis certain and a successful treatment possible," he raised a howl of dissent from the profession all over the world. He was abused and misquoted by those who should have waited until they could investigate for themselves. But perhaps such investigations would have been valueless if carried out in the old routine style with one finger in the vagina, a sound, and a speculum. The quotation, printed in many articles and journals, was finally interpreted, "when in doubt open the abdomen," and I am sure nothing could be much further from the meaning of the original. To-day any Fellow here present will say, "When in doubt as to the nature of a pelvic swelling—and the abdominal surgeon is the man who is perhaps oftenest in doubt—open the abdomen." In this way many a small nodule diagnosed as a fibroid tumor will prove to be a slowly growing and impacted dermoid; many an enlargement supposed to be a fibroid will prove to be a pus tube with thickened walls; many a case

of "pelvic cellulitis" will be found to split up into its elements, enteritis, pelvic peritonitis, salpingitis, and ovaritis—an intra-pelvic agglutination so long marvelled at and so long misunderstood; many an old ectopic-gestation sac will be found, perhaps suppurating and dangerous, and in either event better away; and, in short, many conditions perhaps the least expected will be frequently found.

CLASSIFICATION.—In classifying the forms of ectopic gestation I closely follow Tait and Parry. Ectopic gestation may be tubal or tubo-ovarian; interstitial or tubo-uterine; cornual (developed in a malformed uterine horn). Any of these may by rupture become intraperitoneal by rupture into the peritoneal cavity, or extraperitoneal by rupture into the folds of the broad ligament.

TERMINATION. *Intraperitoneal.*—1. Severe hemorrhage may be either rapidly fatal or recurring hemorrhage may finally cause death if left alone.

2. Suppuration may occur and by secondary rupture set up fatal peritonitis.

3. Suppuration may produce a fatal septicemia.

4. After rupture the placenta may continue its development (either by transplantation or marginal growth—probably the latter), and the pregnancy may go on to full time.

Extraperitoneal.—1. May be absorbed.

2. Fetus may die and may be discharged piecemeal.

3. May be removed at full time.

4. May become intraperitoneal by secondary rupture.

5. May become changed into adipocire or lithopedion.

Period of Rupture.—Hecker found, out of forty-five cases, that it occurred twenty-six times in the first two months, eleven times in the third month, seven times in the fourth month, once in the fifth month.

I have no positive evidence that, after rupture into the peritoneal cavity and death of the fetus, entire absorption of the entire product of conception, as well as of the intra-abdominal blood, may take place; but I have seen the clot organized and fibrous on the side nearest the peritoneum, and believe that it would have entirely disappeared if the centre of the clot had not suppurated. I have operated upon and drained another case in which the tube ruptured into the folds of the broad ligament; the woman bled through the drainage tube for three or four months. She made a good recovery and is now about to be

confined in the natural way. No trace of the old gestation sac could be found a year after operation. In another, from whom I removed a fetus at full time, a sac fully three-quarters of an inch thick entirely disappeared, and no trace of the old trouble can be discovered by bimanual examination.

I am satisfied that rupture into the broad ligament does occur, because the case mentioned in the note above was different from all the others on which I have operated. The gestation was certainly in the broad ligament, and reminded me much of that form of broad-ligament fibroid that lies low in the ligament, toward its broad base, and that cannot be removed with safety. I believe, however, that this form of rupture is much rarer than the intraperitoneal. Complete absorption frequently takes place in these cases after operation has been advised and done, as in my case; and advised and refused, as in many of the cases reported, for the purpose of staying pelvic surgery in its march of progress.

Tubal pregnancies are equally frequent on either side. A tubo-uterine gestation that is delivered by the natural channel without a rupture of an intervening wall cannot be properly classed as an ectopic gestation. Parry mentions one such, and says that "a portion of the ovum has occasionally been found in the uterine cavity, while the rest was in the cyst of the tube." I am not yet convinced that ovarian pregnancy—an impregnation of the ovum through the wall of the Graafian follicle—before rupture of the Graafian follicle, has ever taken place. It seems unlikely that the spermatozoa, after their long travel up the uterus and through the Fallopian tube, would force their way through the wall of the only Graafian follicle containing an ovum prepared for impregnation. Of course stranger things may happen. The proofs adduced have not been sufficient to convince me. The cases have not been distinctly separated from the tubo-ovarian variety, in which the Graafian follicle always ruptures previous to impregnation of the ovum. The occurrence of such a variety is a matter of little importance. Spiegelberg gives the following points in one case that he saw: (1) absence of ovaries; (2) ovarian tissue in the sac wall; (3) the ovum connected with the uterus by the ovarian ligament; (4) the tube appeared to be just as it usually appears when accompanying larger ovarian cysts.

The abdominal variety mentioned by some authors may exist.

but it will always be impossible to prove that the gestation was not originally tubo-ovarian or tubal, and that it became secondarily abdominal. If the placenta will grow, as it undoubtedly will, on bowel wall, I see no reason why it should not originate on bowel wall. Abdominal pregnancy is therefore, to my mind, like ovarian pregnancy—possible, very probable, but not yet proven. Until 1825 the possibility of ovarian pregnancy was generally admitted, until Velpeau, after examining four specimens of alleged ovarian pregnancy, asserted that in three of them the ovum was not situated within but upon the surface of the ovary. The sac of every case of true ovarian pregnancy must consist of ovarian and not of tubal tissue at all points. Barnes admits that ovarian gestation may occur, but does not positively assert that it does occur. A case reported by Dr. Dyce of a patient who carried an abdominal gestation for eight years, and in whose abdomen only one ovary was found after death, proves nothing. I have seen two cases in which but one ovary was present, as proved by abdominal section, and there was no evidence of any previous operation having been performed through abdomen or vagina in either case.

Gestation in an ill-developed uterine horn—the cornual form of ectopic gestation, as I have called it—is rare, and it may be readily mistaken for tubal gestation. Virchow gives a test by which the two forms may be readily differentiated from one another. If the round ligament is found on the outer side of the enlargement we have a cornual ectopic gestation. If the round ligament is found on the inner side of the enlargement we have a tubal ectopic gestation. If the sac has not ruptured, and the cyst can be readily drawn through the abdominal incision, and a pedicle can be readily tied, we have to deal with a pregnancy in an ill-developed uterine horn. Of cases of pregnancy in a rudimentary horn or bifid uterus about thirty cases have been collected, twenty-three of which ended in rupture in the first six months, three in lithopedion, and in four laparotomy was performed. One case is recorded in which the child remained thirty years in the rudimentary uterine horn. In one case Bandl found a pregnancy in a uterine horn that had no vaginal communication. The pregnancy must have originated by a fecundation from spermatozoa that travelled from the tube on the opposite side through the abdominal cavity. No marked corpus luteum could be found on either side.

Interstitial pregnancy may have a curious ending. The case of Maselka was one with such a termination. The patient died, and at the post-mortem examination it was found that rupture had taken place into both uterus and abdomen, the placenta and head of fetus lying in the abdomen, while the body of the child was born per vaginam. Cases of interstitial pregnancy generally rupture later than those of the tubal variety—that is, about the fourth month. Rupture generally occurs at the placental site.

Bandl records the case of a lithopedion of the size of a hazelnut. Early rupture must have taken place, and the fetus at that early age, instead of becoming absorbed or originating supuration—acting, in fact, as it usually does—took on the chemical change necessary and became a lithopedion. The microscopical examination of the tissues of an encysted fetus showed the internal organs shrunk but with their anatomical features preserved. Needle-shaped crystals have been found scattered through the body.

A pregnant uterus has been found in inguinal, crural, and umbilical hernial sacs, but these, not being cases of ectopic gestation, require no more than a mere mention in this place. In twenty-three cases of multiple impregnation Parry says that two had both of the ova outside the uterine cavity, and in twenty-one intra- and extra-uterine pregnancy were found. Haydon recorded a case in which an encysted fetus of eight weeks and a recent fetus of six months were found in the abdomen of one woman. Both children have been carried to term, one extra-uterine and the other intra-uterine.

CAUSES OF ECTOPIC GESTATION.—1. Malformations of the internal genital organs. 2. Occlusion of the inner end of the Fallopian tube. 3. Pressure on the tube or obstruction of its lumen by fibroid tumors. 4. Gonorrheal or other salpingitis. The first cause requires no further comment. The second cause mentioned has been experimentally proven by Nuck, who tied the inner end of the tubes of bitches subsequent to copulation. The third cause can be readily understood without further comment.

The fourth cause requires a closer study. Some believe that in the normal condition the ovum is always fertilized in the uterus and that the spermatozoa cannot travel up the tube. Others believe that the spermatozoa, like trout swimming up-stream,

can easily overcome any ciliary action or current, and that they can readily travel up the tube; but they also believe that the ovum requires the ciliary current to move it, a passive body, onward. In either case the destruction of the cilia would be disastrous. My own belief is that the spermatozoa can readily travel through the tube in spite of the cilia of the tubal epithelium, but that the cilia are essential to the transportation of the ovum from the ovary to the uterus. In the chicken the spermatozoa wander far up into the oviduct, notwithstanding the presence of ciliated epithelium, and fertilize the eggs long before the shell is formed. My views on this point have undergone some change. Gonorrhea is by far the most frequent cause of salpingitis, and it is therefore the most frequent cause of ectopic gestation. The production of ectopic gestation can only be scientifically explained by a pathological or developmental change. It has been stated that the condition was more frequently found in hard-working women than in the indolent and well-to-do. The poor certainly leave the lying-in chamber at too early a date, and thus are more exposed to pelvic inflammations than those who can afford to rest longer after confinement. The poor rarely rest at all after miscarriages, and they work just as hard during menstruation as they do at any other time. Gonorrhea is more prevalent among the working class.

As a result of tubal inflammation a period of sterility generally supervenes between a normal and an ectopic gestation.

Nuck's experiments prove that the spermatozoa reach the interior of the tube and fertilize the ovum there. Tait does not think that these experiments were conclusive, because he holds that no Fallopian tubes exist except in the higher order of mammals that have assumed the upright position. I have made sections of the Fallopian tube of the heifer. Any of these sections might readily be taken for sections of the human Fallopian tube. The bitch, the cow, and the ewe undoubtedly have Fallopian tubes. The sections of the uterus of the heifer cannot for a moment be mistaken for those of the Fallopian tube of the same animal.

Other influences besides that of hard work must be considered. Ectopic gestation is found more frequently in multiparous than in primiparous women. There are certainly more multiparous than primiparous women alive at the present time, therefore ectopic pregnancy should occur most frequently among the greatest

number. Again, the greater the number of children born the greater the number of cases of puerperal salpingitis, and more children are born to the multiparous than to the primiparous women. Parry states that in ten years several thousand women became the mothers of illegitimate children in one of the Philadelphia hospitals and that not a case of ectopic gestation occurred among them. This was used by him as an argument against the frequent occurrence of ectopic gestation in unmarried women. It cannot be used as such. Ectopic gestation often proves fatal to unmarried women, but a physician would scarcely have the hardihood to brand the girl as immoral unless he could obtain a post-mortem examination to verify his opinion before filling in the death certificate. A celebrated unmarried lady died suddenly in a large city recently. I know that she died of rupture of a tubal pregnancy, as verified by a post-mortem examination, but I should not hesitate to wager that her death certificate was not filled in, "ruptured ectopic gestation"; and, further, cases rarely enter a lying-in hospital before they are six or seven months pregnant, and, as rupture of an ectopic gestation generally takes place about the twelfth to fourteenth week, such cases would not be found in the wards of such an institution. In only six cases out of one hundred and sixty-four did fatal rupture occur after six and a half months. The influence of age on the production of this condition has been looked into. It is of little importance, but is a matter of interest. The age at which ectopic gestation most frequently occurs is from 20 to 30 years. The youngest recorded case was 14 years old, the oldest was 47. One or two curious occurrences might be mentioned here. Koeberlé reports a celebrated case. He removed the body of the uterus from a patient and left the uterine appendages. A fistulous track remained, and through this she became subsequently pregnant. Lecluse records a case of celebrity. He had a patient on whom a Cesarean section had been done. She became pregnant, and the product of conception escaped through the old uterine opening into the abdominal cavity. The placenta became attached to the intestines.

In taking up the consideration of this subject a plan similar to that outlined on the opposite page might be followed.

SYMPTOMS. *Before Rupture.*—That ectopic gestation may produce symptoms that will enable the careful physician to diagnose the condition before rupture can no longer be doubted. I remember one case in which this was quite easily accomplished.

SYMPTOMS.

A. Before rupture.	B. After rupture, or the period of rupture up to term.		C. At term.	D. After term.
1. In tubal variety. 2. In interstitial. 3. In cornual.	Intraperitoneal. 1. Severe hemorrhage rapidly fatal, or recurring hemorrhage and fatal if left alone. 2. Suppurating primarily or secondarily. 3. Proceeding to term. 4. Death of fetus and absorption.	Extraperitoneal. 1. Absorption taking place. 2. Death of fetus and discharge piecemeal. 3. Proceeding to term. 4. Secondary intraperitoneal rupture.	1. Fetus alive. 2. Fetus dead.	1. Suppuration and discharge of fetus piecemeal 2. Change into adipocire or lithopedion.

DIFFERENTIAL DIAGNOSIS.

Simple cyst of ovary. Dermoid cyst of ovary. Dilated tube from other causes. Small pedunculated fibroid. Double uterus.	Abortion. Poison. Tumors. Normal pregnancy.	Ovarian cyst. Fibroid. Normal pregnancy. Other abdominal tumors.	Ovarian cyst. Fibroid.
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TREATMENT.

1. Electricity. 2. Puncture. 3. Abdominal section.	1. Expectant. 2. Operative.	1. Child alive. Operative. Expectant. 2. Child dead. Operative. Expectant.	1. Operative. 2. Expectant.
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A lady was away with her family enjoying a summer holiday. She had not had a child for eight or ten years. I could obtain no history of any pelvic inflammation, but she may have had some slight attack of tube trouble without being aware of it. Her physician was away from home. While at her summer residence she was suddenly taken with what at first appeared to be her menstrual period. She had missed one or two months, but had no other symptoms that would lead her to suspect that she was pregnant. The hemorrhage continued and became alarm-

ing. Dr. Sutton, of Pittsburg, the well-known gynecologist, who was enjoying a holiday in the neighborhood, was called in to see her. On making an examination a rounded, smooth, movable mass was felt down in the cul-de-sac of Douglas, the uterus was found somewhat enlarged but empty, and a diagnosis of ectopic gestation was made. The patient was immediately sent home, and my friend Dr. Temple was called in to see her. He asked me to see her in consultation. We found the condition described by Dr. Sutton in a note accompanying the patient. Dr. Temple opened the abdomen some days later and found a movable tube dilated with an ectopic gestation. It was the most beautiful specimen of this condition I have ever seen, and the only specimen I have ever seen before rupture. But there are two sides to every question. I diagnosed a case as one of ectopic gestation some time ago, and it proved to be one of blood cyst of the ovary. Another case I would have diagnosed as ectopic gestation had I not felt the ovarian ligament with such ease that it could not be mistaken. The woman had intra-uterine hemorrhage and was sent to me in consequence of the hemorrhage. She was supposed to have a piece of retained placenta. On opening the abdomen I removed a small cyst of the ovary. The hemorrhage ceased and the woman has been quite regular ever since. The diagnosis of ectopic gestation before rupture is easily made, but is not so easily verified. Only one out of three of the cases I have seen suffering from uterine hemorrhage and movable mass in the cul-de-sac of Douglas has turned out to be a case of ectopic gestation; they were all, however, cases requiring abdominal section for their cure. An operator may diagnose a dilated tube, but until he has opened it with a lancet or trocar he is not aware of the nature of its contents; so that the diagnosis of unruptured ectopic gestation is not complete, even after the sac is outside of the body, until the tube or sac has been opened. I have elsewhere given the symptoms before rupture, as follows:

History of Labors.—In most cases there has been a considerable period of sterility preceding the ectopic gestation.

History of Tubal or Pelvic Disease.—This will usually have been present. The history often shows that the patient has had a bad miscarriage some years before, or else a supposed recent miscarriage.

Menstrual History.—The patient may perhaps have missed a

month, or a period has been anticipated, scanty, or delayed a day or two. Irregular discharges of blood have then begun, and at times have been so severe as to require plugging. These hemorrhages may come on two, three, or four times a month. In some they will be almost continuous. This discharge, together with the passage of decidua, may make the patient assert that she has had a miscarriage.

Pain.—Some have no pain; others have dysuria or frequent desire to micturate, a desire to strain, a feeling as if something was coming down. Pains may be paroxysmal, like labor pains, or like the pains of a miscarriage, and they may be accompanied by a gush or discharge of blood.

Breasts.—Some have shooting pains in the breasts. Breasts may feel hot; they may tingle and feel full. Milk may be present.

Nausea.—Evidently not a reliable symptom.

Other Feelings.—Patient may believe herself to be pregnant, or the reverse. Such feelings cannot be relied on.

Examination.—The vagina may be of a purplish color. The cervix is perhaps soft and patulous. The uterus may be pressed forward or backward, to one side or the other. An irregular swelling that feels like no other swelling, neither like a pus tube nor ovary, that feels knotty and boggy, will be found in its neighborhood. Sometimes this mass may be smooth, rounded, and freely movable. Some say the tumor may pulsate, but other pelvic enlargements also give a sense of pulsation to the examining finger. No placental souffle can be made out at this early period, even with the stethoscope in the vagina. A woman who has a pelvic mass and elevated temperature, and who says that she has had a recent miscarriage, should be closely questioned regarding the supposed miscarriage. These are frequently cases of ruptured ectopic gestation. I have seen several of such cases.

Hemorrhage from the uterine cavity has frequently an extra-uterine cause. This extra-uterine cause may be ectopic gestation, pus tube, small ovarian cyst or cystic disease of the ovaries, heart disease. Hemorrhage from the uterus, with an extra-uterine pelvic mass, does not, therefore, necessarily indicate ectopic gestation. This hemorrhage may be entirely absent in cases of ectopic gestation. Pain may indicate rupture of the tube and its accompanying hemorrhage, or rupture and hemorrhage may

occur with scarcely noticeable pain that is likely to attract the patient's attention, but it is not severe. This pain is of very great importance. The woman has been practically a "well woman" until it set in. There is no evidence or history of recent gonorrhea, though there may be of old infection; the woman has had no miscarriages; she has had no intermittent attacks of pelvic inflammation; but while progressing well, though barren, she suddenly, in the midst of health, becomes an ill woman. Ectopic gestation is the only disease that will produce this condition. The pain is often supposed to be caused by sweeping the house, doing a day's washing, straining at stool, and a hundred-and-one other causes physiologically and pathologically unexplained, but it will be found by the abdominal surgeon to be due to the presence of an ectopic gestation.

I have divided the symptoms of this period into those accompanying the three varieties of the disease—namely, tubal, cornual, and interstitial. In the interstitial form the symptoms simulate normal gestation very closely, and nothing may arouse suspicion as to the true nature of the condition until the shock of an intra- or subperitoneal rupture occurs. If the rupture takes place into the uterine cavity the uterus will empty itself in the usual way. In the cornual variety the patient suffers from pain. In my list of cases I record one; the uterus was bicornate, and I have no doubt that the cornu ruptured about the third month. In this case the menses did not cease until after the onset of pain and the occurrence of hemorrhage into the peritoneal cavity. She was then confined to bed for two months, and when she began to go about she was "large with child," as she expressed it.

Stress has been laid by one writer on such absurd details as the following:

Pain.—May be absent. May be felt only on examination. May be paroxysmal. May be continuous. May occur during coition.

Vaginal Examination.—A mass felt about the size of the probable gestation, of rapid growth, extremely sensitive, pulsating with placental souffle, giving ballottement about the fourth month.

I am myself the culprit. Before having any experience with this disease I wrote a library paper on the subject, and on looking over it I find the above solemnly recorded. There is nothing to

be gained by too great a division of symptoms, but there is a great deal to be gained by a word picture that will indelibly stamp itself on the mind of every student of medicine. In reporting cases of ectopic gestation the following details should always be given: Age. Married or single. Number of labors. Date of last labor. Menstrual history. History of irregular hemorrhages. History of pain. A record of the result of the vaginal and abdominal examination. Other symptoms. Record of treatment. Result of treatment. Period at which operation was done. Nature of operation. Result. If these cases were recorded in some such systematic manner we could form a better estimate of the correctness or incorrectness of the diagnosis. I have noticed, in tabulating these cases, that in many reports the most essential features have been omitted. If we analyze the symptom "pain" we find some difference of opinion. My own view is that the excruciating pain only accompanies rupture of the sac. In some cases the patients suffer mere discomfort, for which they remain in bed from the very first. The pain in such cases may never be suddenly increased. If the patients have little pain it has been supposed to indicate rupture into the broad ligament, but I have operated on one case in which the patient had her abdomen full of blood and was well able to walk around all the day previous to the operation, suffering no pain. Whether rupture occurs in every case or not, is a question not yet settled. Tait removed six quarts from a distended Fallopian tube. One would therefore suppose that the continuance of a tubal pregnancy without rupture is not an impossibility.

We now come to consider the symptoms of rupture or the period of rupture and the progress of the case to term. I think Parry was evidently mistaken concerning the symptoms of rupture. After enumerating the following symptoms, "Characteristic pain located in the hypogastrium or one iliac fossa, of the most severe character, producing collapse more or less profound, with or without syncope; pains paroxysmal in character, with violent exacerbations, with a bloody discharge from the uterus," he says, "The existence of ectopic gestation should always be suspected," and further goes on to say, "If symptoms of abortion supervene, with the discharge of a decidua, or *if the phenomena of rupture of the cyst follow the symptoms just enumerated*, it is the duty of the woman's medical adviser to treat

her as if she were carrying an extra-uterine child." What are the symptoms just enumerated, if not the symptoms, well recorded, of rupture of the gestation sac? I would say that the symptoms of rupture generally are: sudden, violent, unbearable pain, anemia, shock. The patient may not know that anything is wrong with her. She may go out to do a day's shopping, be seized suddenly with pain, become anemic, fall down in a faint, become bathed in cold perspiration with cold hands and feet, speak with difficulty, become unconscious, and die on the spot or in a few hours. Other cases are confined to bed from the first with what is frequently supposed to be "inflammation." They may rise from bed and then the pain may become suddenly severe. Perhaps they go to the closet to have a movement of the bowels, and are suddenly taken, while straining, with pain and faintness. They are then put back to bed with what is supposed to be another attack of inflammation. After a few days a rise of temperature may occur and peritonitis supervene. This may prove rapidly fatal, or the clot may become shut off by adhesions and the patient may gradually emaciate. We can then diagnose suppurating hematocele. Sometimes several days will intervene between the attacks of severe pain and faintness. Dysuria and retention of urine may occur at this time. They may suffer from tenesmus and a good deal of flatus. One patient complained of what was supposed to be a dyspeptic pain. Sudden faintness came on and she died in thirty-six hours. Post-mortem examination revealed the rupture of a six weeks' ectopic-gestation cyst. The sensation of sudden rupture has been noticed in several cases. I ruptured one ectopic-gestation sac while making the examination, and was hurriedly called back into the house from the front gate as I was about to leave, and I found the patient in a very alarming condition. Three days later I removed the ruptured ectopic-gestation sac. If the case passes four and a half months without rupture, rupture is not likely to occur. But very few if any escape rupture. Hemorrhage takes place at different periods of time, and by this fact we are able to explain the stratified clot so often found.

Distention of the tube may perhaps cause paroxysmal and cramp-like pains, but, strange to say, when filled with water, blood, or pus we have none of those excruciating pains so often found accompanying the rupture of an ectopic gestation. Rupture of a pus tube will, however, give rise to a similar pain and

similar collapse. Barnes thought that the escape of blood was due to an overflow through the tube; Tait thinks it due to rupture of the tube; Price and myself think that it is due to a breaking-away at the imperfectly sealed fimbriated end of the Fallopian tube in most of the cases observed. If a patient consults her physician and complains of uncomfortable pelvic feelings accompanied by irregular discharges of blood, and also thinks that she is pregnant, he should insist on making a vaginal examination. Spasmodic pains may occur that are altogether different from the pains of rupture of the sac. They resemble miscarriage pains and are caused by the attempt of the uterus to expel its contents—the decidua. This decidua is usually thrown off at the period of false labor.

After rupture the symptoms will vary according to the termination of the case. Suppuration may set in, and the symptoms will then simulate those of miscarriage followed by septic inflammation. The temperature rises. I place more reliance on the temperature as an indicator of the onset of suppuration than on the pulse. The pulse rises also, but not so rapidly. A mass is felt above the pubes, and this usually increases gradually in size, and as the patient becomes emaciated the mass can be readily made out. It is generally tender and has a distinct fluctuating wave passing through it if it has been left for some weeks unopened. Suppuration may occur in the centre of the clot poured out by the tubal rupture, after it has become largely organized. This pus may escape into the general peritoneal cavity and cause general purulent peritonitis. I have reported one such case. If no suppuration occurs the fetus may escape into the abdomen and go on to full term; the fetus may die and become absorbed; fetal heart sounds will be heard in due time; fetal movements will be felt; placental bruit will be discovered; ballottement may then be made out—the patient, in fact, will present the signs of pregnancy, but the uterus will be found to one side of the mass, with a patulous os and a body about the size it reaches when filled with a three months' gestation. Decidua will probably be from time to time extruded. Contractions of the sac may simulate the intermittent uterine contractions accompanying normal pregnancy. The fetus may die at any time before term and the symptoms of pregnancy disappear. The breasts may diminish in size, the abdomen flatten, and menstruation reappear. If suppuration begins the

patient becomes feverish and begins a long and dangerous illness, the fetus is extruded bit by bit, and the patient is much weakened and exhausted by the long-continued discharge. Tait believes that the only cases in which the child is permitted to reach a viable period are those in which the rupture takes place into the folds of the broad ligament.

Unusual intensity of the placental bruit and fetal heart sound should demand a very close examination of the patient. This is Parry's observation. If the os is patulous, as it usually is, the fundus can be readily reached by giving the patient an anesthetic and passing the finger through the cervix. Thinness of the abdominal walls is just as likely to occur in cases normally pregnant as in cases of advanced ectopic gestation.

We now have to review the symptoms as they occur at term. Some symptoms of pregnancy will in all likelihood be present; labor comes on usually at this time. This is the rule. Premature and delayed labor are the exceptions. This is spurious labor. It may last for but a few hours; it has been known to last over several years; two cases have been recorded in which the pains recurred at intervals for seven and ten years respectively. Accompanying these pains is usually a hemorrhagic vaginal discharge. These pains are supposed to be due to contractions of the uterus. In one case these contractions were noticed at intervals during gastrotomy for the relief of the condition. These rhythmic contractions occur in normal pregnancy, and are held by Tait to be an almost unfailing sign of pregnancy. Edema of the extremities may be present, and, indeed, all the usual uncomfortable train of symptoms due to intra-abdominal pressure. The bowels have been obstructed in such cases by pressure on the rectum. The secretion of milk may only continue for a few days after spurious labor at full term; in some cases it is prolonged. It is said that the mammary glands become active after the spurious labor, just as they do after normal labor. In the case of Penrose, given in the table, the secretion of milk continued for three months after the operation. (I have seen the secretion of milk very abundant three years after the birth of a baby that died suddenly when only a few days old; in this case the menses did not appear during that time and there was no evidence of any pelvic disease.) The uterus at term is not found larger than it would

be at the fourth month of pregnancy. The cervix becomes softer than in the earlier months, and more patulous, but the absence of this soft cervix and patulous os is not evidence of an absence of ectopic gestation.

We now come to the last set of symptoms, those met with after the spurious labor is over. The child now dies. Why it dies we do not know. Probably some degenerative change begins in the placenta and this causes death. Many a physician has been misled by what he supposed to be fetal movements, and has recorded cases in which fetal life was supposed to have continued long after term. Such cases are not worthy of belief. We have no evidence that intra-uterine pregnancy occurs until after the term of an ectopic gestation has been reached.

The liquor amnii may now become reabsorbed. The fetus may undergo decomposition or change into adipocere having the appearance of soft wax; or, if calcareous salts are deposited upon its surface, it becomes a lithopedion. Cartilaginous and bony deposits have taken place in the membranes after the absorption of the liquor amnii and after the membranes have been pressed and moulded around the fetal form. Absorption of the small bones and soft parts of the fetus may also take place. The abdomen diminishes in size as the liquor amnii becomes less in quantity. This is an important point in the diagnosis. Among the cases tabulated this symptom was not carefully observed in one case and an erroneous diagnosis was made (see case). It is a symptom rarely absent. Jonathan Hutchinson was the observer who laid great stress upon the value of this sign. Very rarely the liquor amnii may increase in quantity after the death of the child.

If the fetus becomes encysted the mother may live for years, but, as a friend of mine expressed himself on this condition, "she goes around as if she had a dynamite cartridge in her abdomen, liable to go off at any time." She is uncomfortable. Peritonitis may attack her at any moment or suppuration may set in. Suppuration in such cases is very exhausting and dangerous to life, and many cases die after a long and lingering illness.

DIFFERENTIAL DIAGNOSIS.—Errors of diagnosis are frequently due to defective investigations of the histories of cases. Before rupture an ectopic gestation must be distinguished from: 1. A

small cyst of the ovary or broad ligament (whether hematoma, dermoid, or simple cyst is immaterial). 2. A dilated tube, pyo-, hydro-, or hematosalpinx. 3. A small pedunculated fibroid. 4. A double uterus. I was able to diagnose one case as cyst of the ovary by noticing the tense band running from the enlargement to the uterus and recognizing it as the ovarian ligament. With any of the above-mentioned diseases we may have any of the symptoms of ectopic gestation in its early stage. Colicky pains, morning sickness, milk in breasts, irritation of bladder and rectum, and a mass felt per vaginam may all be present.

Among the cases I have tabulated I find one reported by Terrillon. The usual period of sterility was absent in the case, and the trouble began shortly after confinement and ended in a general peritonitis. Hemorrhagic discharges then began from the uterus. After vaginal examination, hematocele due to ruptured ectopic gestation was diagnosed. At the operation a double hematosalpinx was found. In another of the tabulated cases a hydrosalpinx was found on one side and tubal pregnancy was found on the other. In another a tumor of the ovary was found on one side and an ectopic gestation on the other. I find the case of one woman recorded as follows: She had never been pregnant, had never missed a period, no irregular hemorrhages are mentioned, but she was confined to bed for three months, her pain increased, peritonitis came on, and at the operation a suppurating ectopic-gestation cyst was found. A happy shot at a diagnosis was made in a case recorded by Smuts. His patient missed a month and felt a small tumor in the lower abdomen. She had bearing-down pain on exertion; no sickness at the stomach; the mammae were slightly enlarged and tender, but with no changes in the areola. On vaginal examination a tumor could be felt, feeling like the uterus after the expulsion of the placenta. On opening the abdomen small fibroids of the uterus were found, together with a two or three months' ectopic gestation. Deaver's patient had gone two weeks over her time for menstruation and had no subsequent vaginal discharge. She had bearing-down pains and the symptoms of intestinal obstruction. The abdomen was prominent and tender. She vomited stercoraceous matter. At the operation an ectopic gestation was found. It had ruptured and the peritoneum was filled with a very large quantity of blood.

In the table of errors that I have collated we have two cases of

ovarian cyst, one of hematosalpinx, one of supposed intestinal obstruction, one of ovarian tumor with a twisted pedicle, and one of hematocele, all simulating ectopic gestation in the early stages. We have one case of multilocular disease of both ovaries, and one of parovarian cyst simulating ectopic gestation in the later stages. An ectopic gestation is generally, after it has become fixed by adhesions, more closely connected with the uterus than an ovarian tumor is. An ovarian cyst frequently causes suppression of the menses. From encysted abscess of the broad ligament or pelvic peritoneum I consider that it is impossible to diagnose suppurating ectopic gestation, unless the two former have good proof of a puerperal or other definite origin; this will be made out from the history. There is certainly a difference in the feeling of a small ovarian cyst and an unruptured tubal gestation. Each is freely movable, each feels tense and fluctuating, each may feel hard and nodular, if the cyst be dermoid; but the tubal gestation feels longer and not altogether like a small cyst of the ovary. The absence or the presence of the ovary on that side would be a guide to the physician. A cyst of the tube is generally sausage-shaped and irregular, and is longer than an unruptured tubal pregnancy.

It will be noticed that many points given as characteristic features for purposes of differential diagnosis of extra-uterine pregnancy cannot be relied upon. Symptoms of pregnancy are at times wanting. The uterus may be displaced laterally, to the front or back, though I have found the position just under the pubes the most frequent. Ovarian cyst may be very intimately connected with the uterus, so much so that it has been taken for myoma time and time again. Broad-ligament cyst is very closely connected with the uterus. From my experience in abdominal surgery I am convinced that no man can be positive of his diagnosis of intrapelvic disease until it is confirmed by abdominal operation. I saw a surgeon, who had made many a correct diagnosis, open the abdomen of a patient for the avowed purpose of removing a dead fetus some months past term. The dead fetus proved to be a simple ovarian tumor with many adhesions and very thick walls.

Many lay great stress on this matter of diagnosis, but it is really a matter of small consequence to the patient whether she has a hematosalpinx, a pyosalpinx, a hydrosalpinx, an extra-uterine pregnancy, an abscess of the broad ligament, a par-

ovarian cyst, an ovarian cyst, or an ovarian abscess, because, in order that she may be speedily cured with the least amount of danger to herself, she must submit to laparotomy.

In every woman's hospital the counterpart of two cases I once saw side by side can be found. One of these was a young girl, operated on a week before for the relief of an abscess of the broad ligament, and almost well; the other was the mother of a family, emaciated, hectic, and worn out with seven months of suppuration in an abscess of the broad ligament that had not been opened early and drained, but had been left to Nature. Her groin was riddled with sinuses. Such cases should raise loud murmurs of dissent against delay.

Ballottement is said to be obtained between the second and third months. This is the veriest nonsense and is one of those text-book mistakes handed down to us. If a surgeon hangs his diagnosis of a case of ectopic gestation on ballottement he will be very frequently in error.

As to the use of the sound for diagnostic purposes, I believe that it can safely be used if the patient is suffering from continued and unaccountable pain and continuous or irregular hemorrhage. The uterine cavity is usually an inch or two longer than usual, but it may only be of the normal length.

Barnes, in speaking of retroversion of the gravid uterus, says that it usually gives rise to retention of urine, which ectopic gestation never does. This is incorrect. Several cases have been recorded of retention of urine accompanying ectopic gestation. I have known of two cases of normal pregnancy mistaken for ectopic gestation; one of them was seen by myself, and the other by a confrère well accustomed to examine *per vaginam*. In each pregnancy was diagnosed; in each a protrusion like an enlarged tube was distinctly to be felt at the cornua of the uterus in the normal position of the tube; in each there had been a missed period and there had been an irregular discharge of blood; in each there was pain, and in each ectopic pregnancy was diagnosed; and in one immediate operation was advised, and in the other I held myself in readiness to operate on the intervention of serious symptoms. In the first case the patient had a very natural miscarriage, probably the result of so much manipulation, and, fortunately for her, before the proposed operation was done for her relief; and in case No. 2 she was delivered of a healthy child. It is needless to say that, after so much fuss, she did not ask me to wait

upon her. In case No. 2, from an examination made when the pregnancy had advanced further and had not ruptured as expected, I convinced myself that she had a small ovarian cyst or dilated tube as well as a normal uterine pregnancy.

The diagnosis from what has for years been known as "pelvic hematocoele" is a matter of importance. If we look carefully into the history of the cases recorded in the literature of a few years ago as pelvic hematocoele accompanying abortion, and said to be due to the regurgitation of blood through the Fallopian tubes, we are led to believe that these cases were really cases of ectopic gestation. One of these cases is given as follows by Barnes: Age 42. Last labor three years ago. She missed two menstrual periods. Metrorrhagia then came on and she was supposed to have aborted. She had pain in the hypogastrium. Was not confined to bed. She had difficulty in micturating. Constipated. Jaundice. No marked fever or hectic. A firm, rounded tumor is found that rises to the umbilicus. It is continuous with a firm swelling passing into the left iliac region. Cervix soft and close behind the symphysis pubis. Behind the cervix is a large, rounded, firm, but not a hard swelling, projecting partly into the vagina by depressing its roof. The sound enters three and one-half inches. In this case and in several others reported there is no positive evidence that abortion really occurred. The symptoms of these cases are usually so vague that the real cause of all such hematocoeles must be a matter of doubt, unless the abdomen of the patient is explored. Two cases have been reported of rupture of varicose veins in the pelves of women suffering from ectopic gestation. Barnes, in his attempt to differentiate between ectopic gestation and pelvic hematocoele, fails to do so. I have taken the points as he has given them, and the following is the result:

Hematocoele.

1. May cause retention of urine.
2. There may be a history of pregnancy.
3. May follow or accompany abortion.
4. Have external hemorrhages.
5. Will follow sudden severe symptoms.
6. Uterus less enlarged than with ectopic gestation.

Ectopic Gestation.

1. Not known to cause retention of urine.
2. Often is a history of pregnancy.
3. May simulate abortion.
4. Have external hemorrhages.
5. Will follow sudden severe symptoms.
6. Uterus enlarged.

The last symptom would be identical in each case if the hematocele followed miscarriage. It is therefore not to be wondered at that for years writers failed to separate into two what was really but one disease.

I find in places through the literature of the subject such remarks as: "A diagnosis of hematocele other than tubal pregnancy was made after careful consideration of the symptoms." Upon what differential diagnostic symptoms the writers make up their minds I do not know and cannot find out. When Joseph Price has said that he has seen in his own city six cases of ectopic gestation in four weeks, the disease cannot be very uncommon. It is not nearly so rare as those who do not practise abdominal surgery would wish us to believe. The condition must always have been equally common and unrecognized, or else it is increasing at an abnormal ratio. The critics of the views held by most laparatomists say that "at the present time there is a disposition to refer all cases of hematocele to rupture of an extra-uterine pregnancy sac." If they would insert the little adverb "nearly" before "all," making it read "nearly all," we could accept the statement. A varicose condition of the pelvic veins is often met with post mortem. The enlargement appears to be more frequent on the left than on the right side. The same condition has been noticed in monkeys. Monthly congestions would predispose to rupture of such varicosities. If one of these veins should rupture the best treatment would be to cut down and tie the ruptured vessel.

The thermometer is of no use in making a differential diagnosis between ectopic gestation and pelvic hematocele.

It must be remembered that a woman may present symptoms similar to ectopic gestation during a severe attack of dysmenorrhea.

The old-time cellulitis, that now splits up into its elements, enumerated in another part of this paper, must be mentioned in order to differentiate it from ectopic gestation. In pelvic cellulitis we may have a delayed period, or it may have been missed altogether. Irregular hemorrhagic discharge, severe pain and evidence of profound ill health, a mass in the neighborhood of the uterus, may all be present. No decidua will be found, and the other symptoms of pregnancy will probably be absent. In ectopic gestation, after rupture the feeling to the examining finger is a boggy, irregularly hard and soft mass, while in pelvic cel-

lulitis the mass is usually smoother and of an even consistency.

At term, owing to a sudden change in the position of the parts felt per vaginam during the spurious labor, rupture of the uterus has been diagnosed. This mistake should not occur.

One author, who is or was enthusiastic over the use of electricity in the early months, endeavors to aid the practitioner in making an early diagnosis. He says that after the third month intermittent uterine contractions can be felt in cases of normal pregnancy, and not in cases of ectopic gestation. But pregnancy frequently occurs without the accompanying intermittent uterine contractions, and a distended bladder and subperitoneal fibroids also produce rhythmical contractions. He says, however, that the veriest tyro could not make such a mistake. And yet I have seen a very able and brilliant surgeon open the abdomen of a young girl for the removal of a supposed myoma, conclude that she was pregnant and close her up, and then, eight days after receiving her solemn statement that such a condition as pregnancy was impossible, go back and take out a large myoma. Errors have been made in times past by the ablest teachers—men quite as able to diagnose by palpation and percussion and auscultation as any modern teachers. After the death of the child the diagnosis of the condition is frequently very difficult. The longer the period of time that has elapsed since impregnation the more difficult the diagnosis. The previous history of the case should be gone into very carefully. The history of diminution in the size of the abdomen after a spurious labor at term accompanied by a show, the empty uterus as proved by a sound, the previous changes in the breasts and their disappearance, all point strongly to the existence of an ectopic pregnancy. The occurrence of fetal movements, the woman's belief in her own pregnancy, the absence of the usual changes in the cervix, and the occurrence of false labor pains, are not now to be relied on.

After the death of the fetus, if there is no inflammatory reaction, menstruation usually returns.

TREATMENT.—The treatment of ectopic gestation will vary according to the period reached by the pregnancy. Before rupture, to escape the dreaded knife, electricity has been advocated. Many of those who advocated its use a few years ago have had the manliness to come forward and acknowledge their "change of heart." There is, as the Yankee said, "nothing to it." If I

thought a near relative had an extra-uterine pregnancy I should not invoke the services of the dispenser of the lightning fluid, but should send for the best abdominal surgeon available and request him to be ready for immediate operation. I should wire him to come on immediately and should be very uneasy until after his arrival, when I think my usual peace of mind would be restored. I should then feel that I had the safest remedy easily within my grasp, and would feel very grateful to Tait, who urged us and taught us how to carry out such a safe procedure.

In all cases accuracy of diagnosis is of importance. It is of more importance in discussing the virtues of electricity than in discussing the virtues of surgical procedures. In the one case the disease is hidden, in the other it is unearthed. One advocate of electricity in this stage of the disease says: "If in the early months a woman has missed one period, has had irregular discharges preceded by cramp-like pain in the abdomen, has had certain of the rational symptoms of pregnancy (such as nausea, etc.), and on careful examination an oval-shaped tumor is found posterior to or to one side of the uterus, we may always think with a great degree of certainty of tubal pregnancy." By what I have already said I think it is very clear that there is not "a great degree of certainty" about such cases. You will also find it further stated that if a thorough examination under an anesthetic be made the diagnosis will be rendered more certain. I have not found my doubts in these cases diminished by any such procedures. The many cases spoken of by the advocates of electricity, in which a positive diagnosis of ectopic gestation before rupture has been correctly made, do not appear in the literature of the subject. Of course in each case a verification of the diagnosis must be superadded; unless this is done no estimate of the scientific value of the electrical treatment can be arrived at. It has been said that at least electricity can do no harm. Tait has said that the great bulk of the utterances in this direction may stand well in society discussions, but that they will not stand the test of bedside utterances. Thomas says: "Electricity has these great advantages: if an error of diagnosis has been made, this remedy will do no harm; if the diagnosis be correct, experience proves it to be sufficient in its effect." But he does not add the method of ascertaining the correctness of the diagnosis. I have even heard one or two of

the ardent advocates of fetal electrocution cast a doubt on the correctness of the diagnosis of Mr. Tait after he had removed the gestation sac by laparotomy. They were hunting around for placental tissue. But they do not hesitate to make a positive diagnosis themselves without even making any opening into the abdomen, and with no other aids but the history (the bimanual under anesthesia, if you like) and the sound.

I will not urge the danger of rupture of the sac wall after the use of electricity as an argument against its use. I will not urge the danger of subsequent suppuration of the sac as an argument against the use of electricity. Either may occur without its use, and either may be as readily treated by subsequent laparotomy as if no electricity had ever been used. The case related by Dr. Janvrin and supposed to militate against the use of electricity proved nothing, because the patient suffered from undoubted rupture of the sac before the current was applied, and it is now generally admitted that the current should not be used in such cases.

Cases are on record of growth of the placenta subsequent to the death of the fetus. Whether this death of the fetus be the result of electrocution or not is not a matter of importance. The subsequent growth of the placenta is not due to the use of the electrical current, but this growth may take place in spite of the use of the current. Many of the cases related to prove the value of electricity are given after the following style. My friend Dr. Hanks relates one: "Patient 26 years of age, last child five years ago. In April, 1887, she had nausea and frequent desire to urinate. She lost some blood and passed what was supposed to be decidua. She continued to lose a little blood, her pain increased, and a piece of decidua again passed. There was no elevation of temperature. Tubal pregnancy was suspected, and electricity was employed while the patient was under chloroform. After the third dose the breasts became flabby and the nausea ceased, but there was much hemorrhage for two weeks. Recovery took place in July." Many a woman has just such symptoms as the above and has no ectopic gestation. The breasts became flabby, but no mention is made of their previous hardness. It is well known that even milk may be found in the breasts of virgins, and that women have gone through pregnancy without the least development of the mammae. Gussierow in a series of cases endeavored to prove that pyosalpinx could be

diagnosed by a rise of temperature, but Mr. Tait found the temperature test in his cases an utter failure. Such an observation as that just related of my friend Dr. Hanks I consider as incomplete, and, being incomplete, I consider it of no value in establishing the virtue of the treatment carried out when used in other cases of undoubted ectopic gestation. Barnes, after relating the first case in which electricity was used, says: "Of course it may be doubted whether there was really a tubal gestation."

One author who advocates the use of electricity comments very unfavorably on the use of ergotin injection beneath the skin, because he thinks the ergotin may produce dangerous contractions of the sac wall. The contractions due to electricity should be quite as dangerous, but in his zeal he overlooked this fact. One gentleman has recently said: "We cannot accept the dicta of men who are ignorant of the manner in which electricity is used, or of those who condemn it without a trial." This is the old style of supposed argument. It is not the form of argument I would wish to advance in favor of the use of electricity. The favored few are again brought to the front—the few who know all about electricity. So many doubts enshroud these cases of unruptured ectopic gestation that it is surely not asking too much if we ask the women to die shortly after their cure by electricity, so that we may verify the correctness of the diagnosis. Fibroid tumors and ectopic gestation go hand-in-hand. They are spirited away from the scalpel, their best friend, by a fickle and renewed acquaintance, electricity. The sample case I have recorded as treated and cured by electricity, presenting, as it does, certain symptoms supposed to point to a positive diagnosis of ectopic gestation, is scarcely, after all, in danger of the knife, because an abdominal surgeon would not consider the symptoms definite or severe enough to warrant the performance of a laparotomy.

The prophecy of Barnes may be here related with profit: "The question is often discussed whether it is not advisable to perform laparotomy with a view to removing the embryo and effused blood, to check the bleeding by tying the Fallopian tube on the proximal side of the sac, and cutting away the sac. I do not imagine that this will be successfully carried out in cases of early tubal rupture." A dread seemed to be entertained that the patient would suffer much pain after ligation of the sac. Parry then said, about the same time: "He who would subject

a woman, under these circumstances, to the dangers of a gastrotomy, would have to possess the courage of a McDowell."

Treatment of Patient if Rupture has occurred.—The patient should be put to bed and every effort be made to rally her from the shock. Stimulants should be administered by the mouth or hypodermic needle. Ergot should be given to stop the hemorrhage, and morphia to ease the pain and reduce the sensibility of the peritoneum. All straining efforts should be avoided; if the bowels are to be moved they should be moved by enema, so that the rectum can be evacuated with the least possible effort. Warm packs should be used, in the form of warm blankets and hot-water bottles. The situation should be to some extent explained to the patient, so that she will be the more willing to carry out the physician's directions—directions that may otherwise appear to her superfluous. Sudden death will in some cases occur either without or in spite of treatment; one woman was found dead in bed beside her husband, although she retired in perfect health the night before. After the patient has rallied the physician should at once urge the necessity of a consultation upon the family. To be treated at such a consultation as I was on a recent occasion is gratifying. The patient was the sister of a physician. Her medical attendant sent for me when he recognized the gravity of the case. I diagnosed, with his intelligent assistance, rupture of an ectopic-gestation sac and commencing suppuration in the clot, and advised operation. The family was shocked. The husband, an intelligent fellow, at once took in the situation. I left the house, not knowing what the outcome would be, but giving them twelve hours in which to make up their minds. The brother was not satisfied, but the husband took the matter out of his hands and at once had the patient removed to the hospital. Early next morning I opened the abdomen in the presence of the family physician and the brother, to whom the intra-abdominal condition was a revelation, and cured my patient. The family physician told the husband that if the consultant's advice was not acted upon he would retire from the further treatment of the case.

The operation in such cases is easy. There is no easier abdominal operation, to the experienced abdominal surgeon, than the removal of an ectopic gestation that has ruptured during the first three months. Operation may seem very terrible to the novice, but the experienced operator, who knows how to grasp

the uterine end of the tube to control the hemorrhage, who is not frightened by the large quantity of blood that already fills the pelvis, will bear me out in what I have just stated. Coolness of head, experience, and rapidity of fingering are essential to success. The mortality of the operation in experienced hands is small. I am now speaking of the early operation; and this small mortality at this early stage is the most forcible argument against delay. All attempts to destroy the ovum through the system of the mother have failed, puncture of the cyst is dangerous, the use of the aspirator has the same objection, the injection of narcotics has given no good results, the dead fetus is liable to produce suppuration, the remaining sac is a constant menace to life, the recurrence of hemorrhage is to be feared, and the woman is started on the shortest road to convalescence by one line of action, and by one line of action only, and that is abdominal section and removal of the tube and gestation sac. It is difficult to determine when a woman is so far gone on her road to the grave as to preclude the possibility of averting a fatality by operation. Women will sink, from loss of blood during miscarriage and subsequent to labor, to the very verge of the grave, without dying. In these apparently hopeless cases an experienced operator, with some clean absorbent cotton and a pocket case containing one or two artery forceps, a scalpel, an aneurism needle, and a piece of silk, should not hesitate as to the course he should pursue in the face of such an emergency. Frommel records a case in which the tube was tied and removed, and the blood was, by force of circumstances, left behind in the abdomen, and yet the patient recovered.

Removal of the gestation sac per vaginam has been tried once and is not likely to be tried again. It is a pity to see so many argue against operative procedures. If a woman is bleeding to death from a small piece of retained placenta or an accidental or unavoidable hemorrhage, the men who are opposed to operative procedures for hemorrhage from ruptured tubal pregnancy do not sit passively by and let the patient die; they act, and act quickly. Tracheotomy for the relief of a patient suffocating from the presence of a foreign body in the trachea is not more urgently needed than an abdominal section for the relief of a patient bleeding to death from the rupture of an ectopic-gestation sac. I admire the writings and sayings of that Nestor of our gynecological world, Robert Barnes. He shook himself free

from the traditions of the past and took sides with the younger and bolder men. The acrimony with which war was waged against those who had the courage of their convictions and proceeded to operate was a disgrace to an intelligent profession. Barnes and the lamented Parry were a great source of comfort to many of those in favor of operation, by reason of their moderate utterances. Mr. Tait was the first who with a fixed purpose performed the operation, and he was to some extent indebted to the importunity of Mr. Hallwright, who called him in consultation.

The length of the incision is a matter of small moment. It should be large enough to expedite and not retard operation. The removal of both tubes and ovaries I do not believe to be desirable, unless the patient demands it. There is now living a patient from whom I removed an ectopic gestation, and in whose abdomen I left the opposite ovary and tube. She then became pregnant and was delivered of a healthy child. Two years ago I was forced to remove the other tube and ovary. The child born in the interval is the only one living out of a family of seven or eight; all of the others died in infancy. The patient is now in excellent health.

Of the one hundred and seventy-four cases of rupture of the sac recorded by Parry, none recovered. If the patient survives the period of rupture, and operation is permitted, I believe that, unless urgent symptoms arise, nothing should be done until the child is viable. We may in this way save both mother and child at a later date.

The statistics of Harris show that there is only one chance in nine of saving the mother, and one in two of saving the child, if primary laparotomy be performed at this late period. I see only one reason why primary should be more dangerous than secondary laparotomy, and that is the existence of placental circulation in the former. While a pupil with Mr. Tait I saw him remove the whole placenta at about the fifth month, but the patient died. This hemorrhage from the placenta is a very alarming and dangerous complication. But I do not believe that the placenta has any more tendency to separate before than after the death of the child. If the operation can be carried out without disturbing the placenta, the prognosis should be as favorable to the mother as if the placenta was inactive. I have operated on one case two weeks after term and the death of the child. I

passed into the sac a large drainage tube, through which I washed out the cavity twice a day with gallons of water. I arranged a rubber sheet with a piece of curved tin attachment to fit close to the wound, and with this the water was readily carried away from the bed. During my absence my father passed into the sac a medium-sized Ferguson's speculum and washed out through this. Large pieces of placenta came away, and at times there was some bleeding. When bleeding began I discontinued the washing for the time being, and found that it was caused by a too forcible disturbance of the adherent pieces of placenta before they were ready to come away. The sac wall was very thick, but became entirely absorbed. The patient is now a strong and hearty woman, but has never been pregnant since. To prevent hemorrhage from the cut sac at the time of operation it was found necessary to use clamp forceps, and then to pass a shoemaker's suture about one-quarter of an inch from the margin all the way around the aperture. Septicemia and hemorrhage are the two great dangers of the operation at this period. It has been said that if the navel string is cut short and dropped, and the sac closed, the patient will have a safer convalescence. "If this be carried out," Tait has remarked, "we must be ready to reopen the sac if symptoms of suppuration set in."

Parry has compared the results of primary operations with the results of the cases when left to Nature; he has also compared the results of secondary operations with the results of the cases when left to Nature. This is not a wise comparison. We should compare the results of primary with the results of secondary operation, and we should compare the results of both primary and secondary operation with the results of the cases when left to Nature. He made the mean mortality for primary and secondary operations combined fifty-two per cent. The mortality of the cases left to Nature was also fifty-two per cent. Surgical interference in those days did not, therefore, save a single life. But the art of surgery can do more for us to-day. Few operators operate on one such case, and very few have the good fortune to operate on more than one.

A woman is never free from danger while she is carrying an encysted or dead fetus. Inflammation or suppuration may come on at any time. Subsequent pregnancy may cause suppuration in an old ectopic-gestation sac. When inflammation comes on the patient suffers from pain and tenderness; she becomes fever-

ish, and, if pus forms, a hectic flush appears on the cheeks, emaciation begins, and the patient goes down-hill very rapidly. If the child die before term there is no good reason why it should not be removed by means of the knife, but it is a disputed question whether we should interfere before suppuration sets in or not. The mortality of the cases that suppurated and were opened by the aid of the surgeon's knife through the abdominal wall was only nine per cent. Fistulous openings and long and troublesome sinuses may remain if these sacs are allowed to open of their own accord. If operation is required in the period subsequent to rupture and before full term, I think it will be found better to leave the sac and drain it. The removal of the sac cannot, in some cases, be accomplished, and if it is large and adherent its removal increases the risk.

If an interstitial pregnancy be definitely diagnosed, delivery might be accomplished by tearing through the partition wall after dilating the os uteri.

If intra- and extra-uterine pregnancy occur simultaneously the labor generally progresses normally. My friend Dr. Strathy has recently had such a case. He operated immediately after labor, but unfortunately came down on the placenta and the patient bled to death. I believe in such cases delay would be advisable, if no urgent symptoms arise demanding operation. The desire to save the other child should not influence us in deciding our course of action, and I think we should not impose the extra risk of immediate operation on a woman who has just completed one delivery.

Incision of the vagina at term has been done and both mother and child have been saved. But vaginal or rectal operation should give way to the abdominal. Rectal incisions should never be practised, if we are to judge from the unsatisfactory progress of the cases that rupture, after suppuration, into the rectum. Secondary rupture of the sac may occur, and the liquor amnii then escapes into the abdominal cavity. This happened in my case at term, and the woman suffered severely from shock. At times a mother may die from this secondary rupture, and the life of the child must then be taken into consideration. In such circumstances a rapid delivery should be accomplished on the dead woman if there is a single ray of hope that the child may still be alive.

The details of the operation are not required here. In my

own case mentioned above I opened down to the abdominal cavity in the usual way, found that the sac had ruptured and that the abdominal cavity was full of liquor amnii of a brownish color. I then opened boldly into the sac from the rent downward, being careful to avoid the bladder, and put on a clamp forceps on each side of the opening to check the rather profuse hemorrhage. The edge of the placental side could be clearly noted on one side, but the bulk of the placenta was fortunately attached behind. I then passed my hand, grasped a foot, and delivered. There was some little difficulty in removing the head through the incision. The child was macerated. The cord was tied and left hanging from the opening in the sac and the abdomen. The abdominal cavity was then washed out very thoroughly, and the rent in the sac, together with the greater part of the freshly made incision into the sac, was closed by suture. The edges of the sac opening now left were stitched to the lower angle of the abdominal wound, and the remainder of the abdominal wound was closed. A large glass drainage tube was inserted in the sac. In such cases at term the cyst wall should always be left behind, according to the best of our knowledge at the present time. The day may come when we will enucleate the sac just as we enucleate a broad-ligament cyst. It has been stated that the liquor amnii is very poisonous to the peritoneum, but it did not produce any trouble in my case, although the fetus was macerated.

If the patients refuse to submit to operative interference after the death of the fetus they may carry the child for years. I saw one such case in the wards of the late esteemed Prof. Braun von Fernwald, in Vienna. Billroth removed the fetus, but the patient died. The fetus had become converted into adipocire and had preserved its original form. Some of these cases may, as one author has put it, "become loathsome to themselves and to others, owing to the horrible odors exhaled from their skin and breath."

Tait says that "painful micturition, severe diarrhea, tenesmus, painful defecation, tympanites from the escape of gas into the cyst cavity, may come on, and the patient may be left with vesical, vaginal, or rectal fistulæ. I need not," he goes on to say, "go further into this chamber of horrors, as he who wishes may look up the records for himself if he feel interested. My own intention is never to allow a woman to go through this ordeal as long as I have a scalpel, hemostatic forceps, and a good nurse at hand." And I heartily agree with him.

NOTES ON THE TABLES.

(4) In reviewing the table presented you will notice that the period of preceding sterility is well marked in both multiparæ and primiparæ. One case had been married six years without becoming pregnant. In many the history of an inflammation in the pelvis some time previously is to be noticed, and it is natural to suppose that it was at this time that the damage causing the subsequent malposition of the pregnancy was caused.

Looking down the column containing the abortions, you will notice that many of the patients never had an abortion. One was supposed to have had a miscarriage in the summer, and then another more recently. Another thought that she had miscarried in April, but the menstrual discharge came on again slightly in May. Another thought she had miscarried and then had continuous hemorrhage after it. Another thought she had had three abortions because she had gone a week over each period and then had a profuse discharge of blood. Several never missed a period. Some had very little discharge, at some periods much less discharge than usual. Some had a profuse period and then had a very slight show at the next. Others went only a few days over each period, but had the discharge subsequently at the time that each period was due.

Others missed several menstrual periods, and were then subject to the irregular hemorrhages. In one case there had been no menstruation since the last labor, a year previous. She suffered from profuse hemorrhage, with pain in the left side, and the passage per vaginam of shreds of decidua. The ectopic gestation in this last case was proved to exist by abdominal section.

In some of the cases no mention is made of the important symptom of irregular hemorrhages. In some the quantity of blood lost was small but continuous, in others large in quantity but not continuous. At times it was treacly or of a tarry consistence and of a chocolate color. It was offensive in some cases. In one case there was no vaginal discharge; in one there was no hemorrhage, but the uterine pains expelled a watery fluid like liquor amnii, and yet the patient was anemic and prostrated, and at the operation an ectopic gestation was found to be present. In one case the menses stopped for six weeks and lasted for six weeks. In some cases the expulsion or presence of decidua is not mentioned.

In some cases the patients thought that they were pregnant; in

(A) CASES OF ECTOPIC GESTATION.

Name of surgeon.	Age.	Labors.		Abort.		Menses.		Irregular hemorrhage.	Other symptoms.	Pain.	Physical examination.	Remarks.	Operation.	R.	D.	N. G.
		No.	Last.	First.	Last.	Not missed.	Missed.									
Deaver, G.		Three		None given.		Two weeks.		Was no vaginal discharge.	Depressed, nausea, vomiting, stercoreous, hot, collapsed.	Severe bearing down on pressure over abdomen.	Abdomen prominent. Vaginal examination: Mass found to left and behind uterus.	Should judge this case was not diagnosed. Diagnosis leaned to intestinal obstruction. Several saw in consultation.	Done at sixth week.	1		
Taylor, J. W.	38	.....	.....	None given.	1	.....	.....	Irregular discharge of blood, commencing at a regular period and continuing for two months.	Albuminuria. Felt ill about four months before seen.	Pain in right side of abdomen, at last preventing sleep, unbearable.	Swelling of abdomen rapidly increasing. Vaginal examination: Tense, fluctuating swelling, pushing up the uterus to the left side. Uterus empty. Abdomen enlarged.	Extra uterine pregnancy not diagnosed, but excluded, as there was no broad ligament amenorrhea.	Pone at fourth month. Tube had ruptured into broad ligament some time before.	1	..	..
Cullingworth.	27	Five years	.....	None given.	.....	April to July, 1887.	.....	None given.	Quickened. These movements ceased after the pains. Increased in size at first, then diminished after movements ceased.	Had pains like labor pains for one hour.	Uterus empty. Abdomen enlarged.	Sac found at operation, formed by tubes and broad ligament. Liquor amnii gone. Umbilical cord gone. Placenta in front, removed without hemorrhage. Sac stitched to wound and drained.	At seven months after pains ceased, or twelve months after operation.	1	..	..
Ross, J. P. W.	30	2 Five years	.....	.....	1	.....	.....	Loss of blood for one week.	Milk in breasts. Felt lump in lower part of abdomen. Quickened.	Sudden, severe. Was then confined to bed for two months, then got up, "large with child."	Under an anesthetic, uterus found to be bifid with one cervix. Decidua scraped away. Uterus empty. Abdomen enlarged to size of full-term pregnancy. Parts of child felt.	Patient had been in labor for two or three weeks before seen with doctor in attendance. Pain ceased, breasts diminished. Fetal movements ceased.	At nine and a half months. Sac drained. Placenta left; cord brought out of wound. Sac had ruptured before operation.	1		

Name of surgeon.	Age.	Labors.		Abort.		Menses.		Irregular hemorrhage.	Other symptoms.	Pain.	Physical examination.	Remarks.	Operation.	R.	D.	N.
		No.	Last.	First.	Last.	Not missed.	Missed.									
Tait...	44	1	.....	.....	.....	.....	Two or three months	After ceasing for two or three months, hemorrhage came on and lasted continuously.	.....	Violent pain. In bed ever since November—that is, from November to January.	.....	Ectopic gestation found.	Done at third month.	1	.....	.....
Tait....	29	4	Two years	1	.....	.....	One month.	.....	Felt uneasy. A sensation of colicky pains with weight, as if "womb" was coming down.	Violent, sudden. Pain over abdomen on rising up.	.....	Ectopic gestation found.	Done at second or third month.	1	.....	.....
Tait....	31	2	.....	.....	.....	.....	.....	.....	Obscure early history. Male and weakness.	Pain over abdomen and irritability in urinating.	.....	She was not thought to be pregnant. Ectopic gestation found.	Done in early months.	1	.....	.....
Tait..	29	.....	.....	.....	.....	.....	.....	.....	Severe pelvic symptoms.	Pains of severe character in pelvis.	.....	Ectopic gestation found.	Done in early months.	1	.....	.....
Tait....	27	0	.....	.....	.....	.....	Three months	.....	Never pregnant though married six years. Confined to bed for three months with what was called inflammation of uterus. Enacted. Unable to get about. Looks as if had pus in pelvis.	Acute, violent pain on getting out of bed. Then confined to bed for three weeks with peritonitis. Had two or three attacks of peritonitis.	.....	Not diagnosed as pregnancy, but supposed to be pyosalpinx. At operation fetal bones found.	Done some months.	1	.....	.....
Penrose.	32	4	Seven years	2	11 years	.....	.....	Profuse bleeding for thirteen days, coming on after lifting.	No signs of pregnancy except secretion of milk.	Pain sharp in left ovarian region.	.....	Ectopic gestation. Curious secretion of milk lasting for three months after operation.	Done in early months	1	.....	.....
Penrose.	28	4	One year.	.....	.....	Never menstruated since last labor.	.....	Bled profusely two months ago. Shreds passed from vagina.	.....	Great pain in left ovarian region.	.....	Ectopic gestation found.	About third month.	1	.....	.....
Slo-	34	N.	12	0	.....	Menses came on	.....	Chocolate-colored vagina.	Pus and blood	Pain after eating.	Blue vagina.....	She thought not pregnant.	Done third month.	1	.....	.....

thirteen years.				This ceased, and in a week recurred; a third hemorrhage.		A few days with soreness. Painful defecation.		cope. Second attack when delayed flow came on. Third attack; then had pelvic colic when getting out of bed. A fifth attack of pain with a bursting feeling and faintness. Periodic attacks of pain in lower abdomen. Confined to bed.		and to the right by a boggy tumor lying to left in Douglas' pouch.		Operation. Hemorrhage after, rather severe.		
Morrison.	30	5	Three years									Previous history of inflammatory trouble.	Done at third month.	1
Frommel.	32	3	Two years									Patient thought she was pregnant.	Done sixth to eighth month. Blood not removed from abdomen at operation.	1
Smith.	42											Found at operation that she had fibroids as well as an ectopic pregnancy.	Done at second to third month.	1
Not found.												She thought herself pregnant again. Ectopic gestation found.	Done in early months.	1
Tait.	38	4	Five years									Ectopic gestation found.	Done at third month.	1
Tait	41											Diagnosed as ovarian tumor with twisted pedicle. Fetus evidently dead several weeks.	Done at fourth month.	1

Name of surgeon.	Age.	Labors.		Abort.		Menses.		Irregular hemorrhage.	Other symptoms.	Pain.	Physical examination.	Remarks.	Operation.	R.	N. G.
		No.	Last.	First	Last	Not missed	Missed.								
Tait....	30	...	...	...	...	1	...	Not mentioned	Never pregnant.	In bed with pelvic troubles for three months. Pains increased.	.....	Found at operation suppurative peritonitis with decomposed ectopic gestation.	Done in early months.	1	...
Ross, J. F. W.	38	7	Four years	3	...	...	...	Menses occasionally stop six weeks Dark chocolate color, fetid, profuse. Commenced December 22d, lasted to 24th. Came on December 28th, lasted to January 4th.	Never pregnant.	Pains in lifting, coughing, sneezing; dyspareunia.	After examination per vaginam I left the house. Hastily called back. Patient collapsed.	At operation found ruptured tubal pregnancy, thought probable hematosalpinx, known was pregnancy. Abdomen full of clotted blood.	Operation done second or third day after rupture.	1	...
Ross, J. F. W.	31	0	...	...	She thought so.	Three weeks over.	...	March 29th, '91, well; went for seven weeks and again unwell June 9th. Taken pains like labor pains, and flowing. Tho't had a miscarriage. Collapse. Hot cloths, and went to bed. Bleeding continued.	No other symptoms.	Pain like labor pain. Collapse.	June 30th walked to hospital. Examination found mass. To return two days. Under chloroform a movable, elongated mass, felt dropping in to cul-de-sac and hard, not boggy.	Operation. Abdomen filled with liquid, not clotted blood. Blood grumous. Evidently there for several days.	Operation about ninth or tenth week.	1	...
Ross, J. F. W.	31	5	Three years	3	...	Ten days over.	...	Regular to December, since then profuse. June 12th went ten days over. Severe pain some weeks after. Had to lie down. Discharge copious. Unable to get up since. Very weak.	No signs of pregnancy. Case sent as one of probable hematocele or pelvic abscess. My diagnosis was either rupture of ectopic into broad ligament or threatened pregnancy and fibroid.	Could not sit or stand. Came suddenly and simulated labor pains.	Tumor felt in right inguinal region. Very tender. Vaginal examination: Cervix up under pubes. Passed sound four inches, went to left. Uterus moved independently of mass.	Mass found apparently in broad ligament, and not removable. Ectopic gestation. Opened and washed out sac and drained. Hemorrhage at intervals for nearly six months from drainage tube opening.	About thirteenth or fourteenth week.	1	...
Doan	40	1	Seven	Doctor	...	Went	...	July 18th men-	Thought she	After seeing	Large mass ex-	Diagnosed as	Done after	1	...

Ross, J. F. W.	28	Married only seven months.	Five days.	None.....	No other symp- toms of preg- nancy.	Five months af- ter marriage seized with sud- den pain, right side, low down in abdomen. Went to bed. Sent for doctor. Cold sweat. In bed one and a half days. Up and around again. Recur- rence of pain. Went to bed again.	Increased. Went out week after; went to doctor's house. Pain re- curred in three days; severe. In bed; appeared weak. Pulse 90 to 120, then up and down. Was poulticed. Had pains similar to labor pains. Doctor told her she was preg- nant.	the centre of the pelvis, and pressed by the mass back against the sa- crum.	No similar attack before marri- age. Diagnosis obscure; thought might be mis- take. Removed patient to hospital to be more close- ly watched. While there sud- den severe at- tacks of petio- nitis, and deter- mined to operate at once.	Small mass to be felt on right side of abdomen, low down, in front of uterus and appar- ently between uterus and blad- der; not mov- able or fluctu- ating.	Diagnosis: Rup- tured ectopic gestation, con- tinuing suppu- ration, in the blood clot.	Found second- ary rupture of a suppu- rating semi- organized, old ectopic gestation clot. Puri- lent petio- nitis.	about twelfth week from among the intes- tines and un- connected with the tube. Clots in abdomen had become encysted by inflamma- tory adhe- sions of the intestines and had then suppurated.
Ross, J. F. W.	31	None.	1	Three years ago.	Three weeks.	After missing three weeks had discharge of blood for three weeks.	Temperature and pulse nor- mal until five days after first attack, when pulse was 130, temperature 102.5°.	Abdominal pain, uncomfortable but not severe, lasted two weeks. Was straining at stool when sud- den, severe pain seized her, low down in right side of lower ab- domen. Crawled to bed, and aris- ing a few hours after, pain re- curred. Three attempts were made to walk, and each time pain came on.	Pelvis filled with a mass.	Diagnosis: Rup- tured ectopic gestation, con- tinuing suppu- ration, in the blood clot.	Eight to tenth week. Abdomen filled with blood, cru- sons, cot- tee-ground colored, and stinking.				

(B) SYMPTOMS OF FOUR CASES OF SUPPOSED ECTOPIC GESTATION CURED BY ELECTRICITY.

Name of surgeon.	Age.	Labors.		Abort.		Menses.		Irregular hemorrhage.	Other symptoms.	Pain.	Physical examination.	Remarks.	Operation.	R.	D.	G.
		No.	Last.	First.	Last.	Not missed.	Missed.									
Harri-son.	20	2	One year.	.....	.....	Never ceased, but scanty	.....	Uterine hemorrhage.	Chills, vomiting, quick pulse, anxious face.	.....	Elastic, movable tumor on right side of uterus. Uterus enlarged.	Ectopic pregnancy diagnosed. Electricity used five times. At second sitting the symptoms improved.	None done.	.....	.....	.....
Harri-son.	31	.....	Seven years	.....	.....	Not mentioned.	.....	Hemorrhagic discharge. Thought a miscarriage was impending.	High temperature.	.....	Uterus enlarged. A swelling felt to right of uterus, thought to be perimetritic exudation, but found to be a somewhat rounded, soft, elastic tumor, tender, not fixed.	Tubal pregnancy was diagnosed.	Galvanic current was used with a satisfactory result.	.....	.....	.....
Hanks.	26	.....	Five years	.....	.....	1	.....	Lost some blood. Passed supposed decidua. Hemorrhage continued, but only slight.	Nausea. Frequent urination. No rise of temperature.	Pain increased.	.....	Under chloroform electricity used three times. Supposed to have cured an ectopic gestation. Breasts said to have become flabby.	.....	.....	.....	.....
Hanks.	.....	3	Three years	.....	.....	1	.....	Had a loss of blood.	.....	Pain above the groin.	Uterus pushed to the left by a large tumor to right of it. Not anesthetized.	Electricity used. Pain ceased after the first application.	.....	.....	.....	.....

Name of surgeon.	Age.	Labors.		Abort.		Missed.		Irregular hemorrhage.	Other symptoms.	Pain.	Physical examination.	Remarks.	Operation.	R.	D.	N.
		No.	Last.	First	Last.	Not missed.	Missed.									
Packerd.	29	5	.....	0	.....	.....	Two mos.	Frequent hemorrhages. Clots and shreds like decidua. Fetid. Hemorrhagic discharges.	Breasts tingled.	Sharp pain in abdomen, coming on shortly after confinement. General peritonitis.	After examination by vagina a boggy-feeling tumor was felt, and hematocoele from ruptured ectopic gestation was diagnosed.	Operation proved case to be an ovarian tumor.	Done.....	..	..	1
Terrillon.	32	4	One year.	.....	.....	Not given	.....	Hemorrhagic discharges.	.....	False labor pains lasted for four hours. Felt as if child was about to pass. Felt the swelling press downward.	Abdomen enlarged. Size did not diminish after false pains.	Operation proved case to be double hematocoele.	Done.....	..	..	1
Tait.	.....	.....	.....	Not given	.....	.....	Eight mos three years ago.	No discharge.	Breasts enlarged. Felt movements.	False labor pains lasted for four hours. Felt as if child was about to pass. Felt the swelling press downward.	Abdomen enlarged. Size did not diminish after false pains.	Operation proved case to be multifollicular disease of both ovaries.	.....	..	..	..
Tait.	28	.....	.....	1	.....	.....	Two mos, then came on. Ceased again two mos.	A slight show for one month.	Felt movements.	False labor pains	After labor size of abdomen increased and did not diminish. Os not patulous.	Operation proved to be a parovarian cyst.	.....	..	..	..
Price.	.....	.....	.....	.....	.....	.....	One or two mos.	Discharge of debris supposed to be decidua.	Morning sickness. Milk in breasts. Bladder and rectal irritation.	Colicky pains.	Mass felt to left of uterus.	Operation proved to be a small ovarian cyst.	.....	..	..	..
Morrill.	31	6	20 mos.	.....	.....	1	.....	Never missed, but menses irregular. One week before last period expelled what was said to be decidua, and had slight flow again two months after.	No signs of pregnancy given.	Pain in back. Was better when lying in bed. Got up, and had vomiting with bearing-down pains, and fainted.	Uterus enlarged and retroflexed. Cervix crowded behind the symphysis. A bulging in Douglas's sac.	Recovery not complete. Nearly a year after a considerable hematocoele lump felt, likely to interfere with her existing pregnancy.	Not done. Case supposed to be hematocoele and not ectopic gestation.	..	..	..

others they felt sure that they were not pregnant, even though they had pains in the breasts. In many of the recorded cases the signs of pregnancy were passed over as if they were of no importance. Movements of the fetus are recorded in two cases in which ectopic gestation existed, and in two cases in which ectopic gestation did not exist but in which some other abnormal condition was present.

The false labor pains came on in some at term, and in others before term. The child usually dies after the false labor. The decidua is usually expelled with these pains, if it has not been previously thrown off. This shedding of the decidua is usually accompanied by a "show."

(B) In summing up the dates at which operation was done in these cases, I find the following:

At six weeks	1 Death.	0 Recoveries.
Two to three months	1 "	4 "
Third month	2 Deaths.	8 "
Three to four months....	2	"
Fourth month.....	2	"
Early months.....	6	"
Sixth month.....	1	Recovery.
Ninth month	1	"
Twelfth month	1	"
Seventeenth month.....	1	"

Result not given:

At three months.....	1 case.
Early months.....	1 "

I might have collated a larger number of cases, but could not see that any benefit would result. Enough are presented to form the basis of a critical review of the whole subject.

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16. Transactions of the London Obstetrical Society.
17. CHARPENTIER's Cyclopedia of Obstetrics.
18. GRANDIN on Electricity in Obstetrics and Gynecology.
19. MÜLLER on Developmental Anomalies of the Uterus.
20. BANDL on Extra-uterine Pregnancy.

NOTE ON ONE OF THE CONDITIONS OF THE USE OF ELECTRICITY IN THE TREATMENT OF UTERINE FIBROIDS.¹

BY

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APPROPOS of the recent discussion of the treatment of uterine fibromyomata by electricity, I beg to present the uterus and adnexa removed a few hours since from the body of a woman subjected to this plan of treatment by Dr. W. Wetherla and myself. The case is of great special interest, in that it relates to the topic of the conditions under which the use of electricity may be permitted. I may be pardoned for venturing to call your attention to the definition of the word "condition," inasmuch as it is an ambiguous term. "It means," writes J. S. Mill, "that on which something else is contingent, or (more definitely) which being given, something else exists or takes place."² As at present informed, the English language contains no univocal term exactly equivalent to the German *Bedingung*.

The particular condition upon which the successful use of electricity in uterine fibromyomata is contingent, as illustrated by the history of this case, is a normal or relatively normal state of the Fallopian tubes, ovaries, pelvic peritoneum, and connective tissue.

The patient had been an invalid for a number of years from

¹ Read before the Chicago Gynecological Society, April 15th, 1892.

² Exam. of Hamilton, iv.

recurrent attacks of general peritonitis and uterine hemorrhages. For several years she was under the care of Dr. H. P. Merriman, who has signified his intention of discussing the treatment of the case later in the evening.

She came under my observation June 19th, 1891.

Status præsens.—Mrs. C., 42 years old, American, twice married, nullipara; five feet one inch in height, one hundred and thirty-eight pounds in weight. Thoracic viscera normal, urine normal, pulse and temperature normal. With the exception of greatly congested facial veins, the patient presents the appearance of good health. The abdomen, moderately tympanitic, has very tense walls.

A hard, symmetrical tumor of the uterus, the size and in general the shape of the pregnant uterus at the fifth month, occupies the hypogastric region, upward extending nearly to the navel, and downward filling out the true pelvis. The vaginal portion of the cervix uteri, slightly elongated, presents the typical virginal shape. The tumor presents several subperitoneal nodules on either lateral surface, while the anterior and posterior surfaces are smooth. The growth is relatively mobile. No enlargement of the appendages can be detected. The vaginal mucous membrane has a violet hue from venous stasis. The examination, necessarily prolonged, causes considerable pain but no bleeding.

Diagnosis: Mural fibromyoma of the uterus with subperitoneal outgrowths and consecutive pelviperitonitis. The probability of diseased appendages entertained.

The patient summoned me on account of severe, paroxysmal pain referred to the pelvis, and difficulty in locomotion. She was practically bed-ridden, and had been in this state for some months. An examination under ether was declined.

Under rest in bed, the exhibition internally of hydrastis canadensis, ergot, and ammonium chloride, and the local application to the vault of the vagina of tampons saturated with solutions of ichthyol in glycerin, the patient improved in a remarkable way. The tumor diminished sensibly in size, the pelvic pain disappeared, menstruation became nearly normal. She left her bed and began to lead an active life. For a period of eight months she enjoyed relative health. In February her menstrual period was prolonged three weeks, and early in March the bleeding began anew. There was no great gush of blood from the uterus.

but a constant oozing that alarmed the patient, while it soon produced a serious degree of anemia.

The means just mentioned failing to arrest the bleeding, I determined to use electricity in conformity with Apostoli's methods. I preferred electricity to curettement on account of its alleged greater efficiency in such a case, and because it seemed to offer less risk of disturbing the appendages and peritoneum. Moreover, the patient refused absolutely to be anesthetized. Indeed, she was decidedly averse to electricity, and I was obliged to urge the treatment in positive terms.

The notion of abdominal section with removal of the growth was suggested, but the patient at once and peremptorily refused to submit to any cutting operation.

Wednesday, March 30th, 11 A.M.: First application of electricity by Dr. Wetherla. Dr. Wetherla is present to show the apparatus, which he has recently received from GaiFFE, in Paris. Patient in bed in her own home, pulse and temperature normal: sterilization of the vagina, cervical canal, and of the instruments. The positive pole—small platinum electrode—was easily passed a few lines above the os internum, and the negative pole—large clay electrode—was applied over the lower abdomen. A current of seventy-five milampères was applied through fifteen minutes. The tumor became perceptibly harder and the oozing of blood ceased. The patient experienced very slight discomfort. She remained in bed for the balance of the day, but next morning she was up and about as usual. Pulse and temperature were normal, there was no special abdominal tenderness, and the bleeding had ceased.

Saturday, April 2d, 11 A.M.: Second application of electricity under the same conditions as on Wednesday. Pulse and temperature normal. A current of one hundred and two milampères was applied through fifteen minutes. The degree of discomfort was less than on the first occasion. The patient remained in bed two hours, and then got up, dressed, walked about, and went down-stairs to dinner at 7. She ate moderately of a dinner in which fresh cucumbers figured.

In the middle of the night she was seized with sudden, acute pain in the abdomen, and fainted on her way to the water closet. I saw her early Sunday morning, April 3d. She was suffering intensely from pain referred to the abdomen: temperature 99° F., pulse 100; slight tympanites. I ordered a large hot-water

enema, turpentine stupes and morphine hypodermically enough to relieve pain, and a very light diet. The enema brought away some hard, scybalous masses and considerable gas, so that the patient rested comparatively well for the balance of the day.

Monday, April 4th: Morning temperature 100° F., pulse 110, tympanites increased, abdominal pain marked, nausea and vomiting. I ordered ten grains of magnesium sulphate with five grains of magnesium carbonate every hour, and small quantities of peptonized milk every four hours. In the evening there was a copious evacuation of fluid feces; temperature 99° F., pulse 110.

Tuesday, April 5th: Morning temperature 101° F., pulse 110, tympanites increased, pain less, nausea and vomiting ceased. Mediate irrigation of the abdominal surface with cold water was substituted for the turpentine stupes. Evening temperature $101\frac{2}{3}^{\circ}$ F., pulse 125.

Wednesday, April 6th: Morning temperature $101\frac{1}{3}^{\circ}$ F., pulse 116. Evening temperature $100\frac{1}{2}^{\circ}$ F., pulse 120. From 10 in the evening the patient grew weaker, and died at 4:30 Thursday morning, April 7th.

During this illness there were associated with me in the management of the case Dr. H. P. Merriman and Dr. Frank Billings.

Six hours after death I was permitted to make a limited autopsy. On opening the abdomen the classical signs of a general acute, suppurative peritonitis, engrafted upon the remains of former attacks, were presented. The omentum, enormously thickened, containing old, minute extravasations of blood, was adherent to the parietal peritoneum and to the intestines. The intestines, in a state of absolute paralysis and distended with gas, were glued together by old and recent adhesions, but there was no organic obstruction of the lumen by bands or adhesions at any point. The peritoneum, where not obliterated, thickened, and opaque, was covered with a thin layer of pus. The peritoneal cavity contained serum, flakes of lymph, and two tablespoonfuls of pus. The appendix vermiformis was normal. The pelvic cavity and hypogastric region were filled out by a mural fibroid with numerous subperitoneal outgrowths. Behind this tumor an abscess containing three ounces of pus was found in the base of each broad ligament. The walls of these cavities were enormously thickened and they were plainly very old. The intestinal mass

behind the tumor was intimately adherent to these parametric abscesses. The tubes presented signs of catarrhal salpingitis, but they contained no pus. No trace of ovarian tissue was discoverable, although the ovarian ligament on either side could be traced to the abscess cavity. On opening the fibroid tumor the cavity of the uterus, somewhat dilated, is seen to occupy its core. The mucous membrane is thickened. A superficial eschar, extending from the os internum to the os externum, indicates the area covered by the electrode, but there is no sign of infection spreading from this eschar. I was not able to demonstrate any opening between these pelvic abscesses and the general peritoneal cavity, although, of course, infection probably spread from this source.

Remarks.—The evidence, as collected from the clinical course of the case and the autopsy, does not warrant positive conclusions as to the relation between electricity and this woman's fatal peritonitis. I have tried to present faithfully the facts in the case, and I prefer to let you make your own deductions.

Obviously electricity was not adapted to the case by reason of the diseased adnexa, and exact knowledge of the state of the pelvic viscera would have excluded its use. I examined many times and with care by the bimanual method the genitalia, but I never examined the woman under an anesthetic. I am of the conviction that such an exploration would have revealed the presence of diseased adnexa.

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VENTRAL HERNIA FOLLOWING LAPARATOMY.¹

BY

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VENTRAL hernia as a sequela of laparotomy frequently occurs. In many cases it gives rise to much suffering, and in not a few instances, in consequence of it, the life of the patient is endangered.

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The reasons of the failure to obtain perfect and permanent union of the divided structures are variously stated by authors. The retraction of the aponeurosis of the oblique and transversalis muscles so that it is not included in the deep sutures or its edges are imperfectly coaptated, the too close or too loose contact of the divided surfaces, and the imperfect coaptation of like structures—all this relates to faulty suturing of the wound.

To the use of the drainage tube have been attributed many cases of ventral hernia, and not a few cases appear where the iodoform gauze packing has been employed.

Martin states:¹ "Not the method of suture, but the state of nutrition, the occupation, and the tone of the tissues of the patient, determine the occurrence of hernia."

I have had one striking illustration of the effects of a depraved condition of the system and a lack of tonicity of the tissues resulting in the formation of a ventral hernia. A large hernia was cured after two operations, and in a few weeks another hernial mass found its way out of a stitch-hole opening. Further examination showed that there were three other thin spots in the abdominal walls at the site of the deep stitches, and it seems to me that in the course of time other hernial masses will find their way out of these openings. Heavy lifting, heavy work, falls, or violent coughing after the operation certainly predispose to the formation of these herniæ. In one case I have seen, a fall upon an icy pavement directly caused a hernial protrusion.

Out of something over seventy of my cases of laparotomy I have found four cases of ventral hernia. In three of these the drainage tube was used, and in one of them no hernia appeared for over one year, when the abdominal bandage was discarded. A few days later the patient had a violent attack of sneezing which induced pain at the lower extremity of the scar. Upon examination a small protrusion was discovered. This has gradually increased, so that now at the end of four weeks it is nearly as large as an ordinary hen's egg. In a second case in which the drainage tube was used the woman went on thirteen months after the section without anything abnormal appearing in the cicatrix. She continued to wear the abdominal supporter. One day, later, she accidentally discovered an enlargement at two points along the line of the scar. The scar was long, extending nearly to the

¹ Edebohls, Jour. Amer. Med. Assn., May, 1891, p. 547.

ensiform cartilage above and to the pubes below. There were two herniæ, one near the upper extremity of the scar and the other just below the umbilicus; the lower finding its way out of a transverse cicatrix the site of a transverse incision made through the rectus muscle and fascia in order to yield a better view of the pelvic tissues during the operation. In this case the use of the drainage tube had nothing to do with the causation of the hernia, as it did not appear at the point at which the tube was inserted. The wound was closed by two rows of sutures—viz., a deep one including all the layers of the abdominal walls, and one of catgut uniting the edges of the peritoneum. The third case of hernia in which a drainage tube was used was a woman from whom pus tubes were removed. We had an alarming hemorrhage to control, in which gauze packing was employed. A glass drainage tube was also employed. Eight weeks after the section a moderate-sized hernial protrusion was found at the place of exit of the gauze tampon and drainage tube. This patient suffered greatly in consequence of the rupture, so, four weeks later, it was operated upon and a cure effected.

One other case of ventral hernia has occurred in my practice. In it no drainage tube was used. The incision was short and closed by a single row of through-and-through stitches. The patient was a domestic. She made an excellent recovery from the operation and went to work in eight weeks. Contrary to instructions, she left off the bandage. A hernia appeared at the lower extremity of the scar. It incapacitated the patient from work and was operated upon, a cure being effected.

Two other cases of ventral hernia have fallen under my observation, one in which the rupture resulted from a fall more than a year after the operation. No drainage tube was used. The stitches were a single row through and through. The other case was a syphilitic upon whom two laparatomies had been performed. After the second laparotomy she got up in three weeks without a bandage. A few weeks later the hernia appeared and she came under my observation at the city hospital. There was separation of the recti muscles throughout the entire length of the scar. It required two operations to cure this hernia. Another one appeared a few weeks later at the side of the scar through a stitch-hole cicatrix. This is the case, referred to above, in which the hernia was stated as due to a depraved condition of

the system and a lack of tonicity of the tissues. In three of these cases the patients were fat and the incisions were long.

An experience in six cases is not sufficient to draw any very definite conclusions, yet this experience tends to confirm what has already been stated above as to the causes of ventral hernia.

The discomfort produced by these herniæ varies greatly. Some patients suffer little when a well-fitting bandage is constantly worn during the day, others can find no relief by any mechanical means. Pain is most frequently complained of; it is described as a sickening, dragging pain, and sometimes as being colicky before the bowels act. There are usually gastric disturbances and constipation. Not infrequently, too, there are vesical irritation and nervous disorders. The dangers are that strangulation will occur when the opening is small, or rupture of the coverings when the tumor is large and not well supported.

The diagnosis of ventral hernia following laparotomy is easy. We need not discuss it at length. There will be a protrusion in standing that disappears more or less completely on lying down. This protrusion will be somewhere along the line of the scar. The hernial mass may be forced out, even when the patient is lying upon the back, upon coughing. It quickly recedes, and an opening beneath the skin is found through which the hernial mass has appeared and disappeared. The opening may be large or small and one of a variety of shapes. If small it is likely to be oval; if large, oblong or irregular in shape. There is sometimes difficulty in completely reducing the hernia, if a very considerable portion of the upper part of the mass is omental and adherent to the under surface of the abdominal parietes up to the edge of the ring and extending beyond to the sac and there adherent. Usually, however, the edge of the ring can be made out and the true condition determined.

Strangulation here presents no features materially different from those present in other forms of hernia.

Edebohls¹ cites two cases and records another of spontaneous rupture of ventral hernia. I have met with one case in which the coverings of the hernia were so thin, and, when the patient was upon her feet, so tense, it seemed to me rupture was imminent.

The schematic figures in the books showing the coverings of the hernia are not in all respects exact. For instance, the sac

¹ Jour. Amer. Med. Assn., May, 1891, p. 548.

of the hernia is figured as the peritonem. There is frequently, I believe, a non-union of the edges of the peritoneum as well as of the deep fascia after the section, especially if the gauze packing or a drainage tube has been used; so that when the opening is formed and the gut or omentum protrudes, there remain only the skin, subcutaneous celluloadipose tissue, and a thin layer of newly formed tissue similar to that composing the bands or ribbons of adhesions in inflammatory conditions of the pelvic and abdominal contents. Such was the condition the writer found in one case. Here, when the sac was opened and examined, it was found the edges of the peritoneum were very nearly as widely separated as were the recti muscles. The sac was very thin and had all the naked-eye appearances of newly formed tissue. This was the case in which the operation for cure of the ventral hernia was done three months after the performance of the section, so that it afforded good opportunities to study early conditions. Unquestionably the color, texture, and general appearances of such a structure would change in time, so that probably it would, without microscopical examination, be mistaken for peritoneum.

It seems to me a knowledge of the fact that the cut edges of the peritoneum are sometimes (I believe frequently) widely separated, being pushed apart by the protruding mass, should influence us in adopting a method of operation for the radical cure of the hernia. The part played by the peritoneum in strengthening the anterior abdominal wall is probably slight, yet it is something and should be utilized. Furthermore, there should be a continuous peritoneal surface in front when there is so much friction and pressure.

Suppose now we should adopt the method so ably advocated by Edebohls¹—viz., separate the cutaneous layer from the peritoneal covering of the sac, this separation to be complete and carried well to the margin of the ring. Now invert the sac (peritoneal) and draw together with stitches the edges of the recti muscles over it. Of course the sac is interposed between the edges of the peritoneum and there can be no union of their borders. On the other hand, suppose we open the sac and find the border of the incised peritoneum upon either side—*i.e.*, provided they are separated. Let them be drawn together and united by a separate row of sutures; then, if the union takes

¹ Jour. Amer. Med. Assn., May, 1891, p. 548.

place, we will reach much better results than in the former case.

I am not sure this is an important point, yet I think it worthy of further investigation. The important question connected with the subject is, How can we prevent the formation of ventral hernia?

One's beliefs relating to the cause of the occurrence will greatly influence his treatment of the patient after abdominal section. If he believes with Thomas that the occurrence of hernia is not the result of bad management, he will not, I fear, be inclined to be so careful in closing the abdominal wound and in the after-treatment. It seems to me, however, Wylie¹ goes too far when he says: "As a rule, when hernia after laparotomy does occur it is due to the fault of the operator, rather than to want of care on the patient's part after she is allowed to get up."

Between these two extreme views lies the truth. The ideal method of closing the abdominal incision is to bring tissues of like structure into contact—that is to say, peritoneum with peritoneum, aponeurosis with aponeurosis, muscle with muscle, etc. It is frequently impossible to do this with a single row of stitches if the abdominal walls are thick and tense or if they are very much relaxed. In such cases the preferable method is to unite the different layers by separate sets of sutures. Here again we may encounter some obstacles to perfect and strong union of all the structures, for the catgut or kangaroo-tendon sutures we use will sometimes induce suppuration, giving rise to an abscess and thus lead to a weakening of the abdominal walls. I have had but one such unfortunate occurrence since I began using the kangaroo-tendon suture. It is essential that the edges of the deep fascia and the aponeurosis of the transversalis and oblique muscles should be accurately coaptated. This can be better done by sutures than otherwise. The Lembert-stitch method of Wylie seems to me to be entirely unnecessary. Eastman has described to me a method, devised by him, of holding the border of the linea alba slightly overlapped, seam downward, in close contact. Before placing any sutures he has an assistant pick up the cut edges of the linea alba and draw them well out of their hiding place. The deep sutures are then placed, and just before they are tied the borders of the aponeurosis of the recti muscles are drawn together, and the running stitch of a single thread of

¹ AMERICAN JOURNAL OF OBSTETRICS, vol. xx., p. 26.

silkworm gut is then passed, first in one edge and then in the other. By an overcasting stitch the margins are brought together from the lower to the upper angle of the incision. This thread is tightened by drawing first on one end and then on the other. When the wound is finally closed one end of the silk-worm gut will protrude from either extremity of the incision. This thread is not removed until the end of two or three weeks. He rejects catgut, and aims by the means described to keep the borders of the fascia together until firm union of this non-elastic covering of the abdomen has taken place, and says since he has adopted this method he has not as yet found any cases of hernia.

Wylie has very forcibly pointed out the danger of allowing the bowels to become constipated during the first few days after the section, and of the proneness of violent coughing to cause separation of the coaptated edges of the incision. From the combined effects of these two, one of the writer's patients had the misfortune to completely tear open the abdominal incision one week after the removal of the stitches, when, too, it had been thought there was union by first intention.

It has come to be the custom of the writer to induce a movement of the bowels the third day and every second day thereafter. His patients do better under this plan. Sometimes calomel and salines are given at first, and at other times enemata are quite sufficient; when efficient they are preferred. A properly fitting abdominal bandage is unquestionably of value in supporting the abdomen and preventing the stretching or separation of the newly formed tissues along the line of the incision. It has been demonstrated over and over again that an umbilical hernia in an infant may be cured by the use of a truss or a bandage supporting and holding in place over the hernial opening an unyielding compress.

If there should be imperfections in the union after abdominal section, it is reasonable to think that the bandage will be of as great service as it is in umbilical hernia in the infant. It should be worn constantly during the day for at least one year after the section. A few weeks after the laparatomy it may be left off while the patient is in bed, unless there should be special indications for its use, such as coughing or vomiting. In some cases of hernia the bandage serves a very good purpose in preventing an extensive protrusion of the hernial mass. A neatly fitting

abdominal bandage, with a moderately thick piece of pasteboard covered with chamois skin and fastened to the under surface of the abdominal bandage, placed so as to rest, when applied, over the hernial opening, has afforded a comfortable support to the hernia in two of my patients.

My patients have not well tolerated the umbilical trusses. These have been invariably laid aside after a time, the abdominal bandage being substituted.

Notwithstanding our utmost endeavor to make our patients comfortable, there will be many whom the hernia renders incapable of work or in whom it causes constant suffering. In such cases an operation for the radical cure of hernia is indicated. I believe the method selected should depend somewhat upon the conditions found; as, for instance, if the hernial opening is small and the protruding mass also small, the edges of opening distinct, and the peritoneum forming the hernial sac and the mass can be completely returned to the abdomen, we may freshen the edges of the ring, and, after pushing the sac into the abdominal cavity, bring the separated structures together and secure them by separate rows of buried stitches. If the structures about the ring have so blended together, in consequence of inflammatory processes, that they cannot be recognized, they may be split with knife or scissors, and separate rows of stitches be introduced. By this means the writer's first case was cured, and now, at the end of nearly two years, there has been no recurrence of the hernia.

In the next case he operated upon, the hernia was large and the opening in the abdominal walls beneath the skin was also large and irregular in shape. He was unable to entirely reduce the hernia. About two-thirds of the hernial mass could be returned; the other one-third remained protruding through the upper portion of the hernial opening. Obviously the method just described would not be applicable here. The sac was opened and the adherent mass found to be omental. It was adherent to the parietal portion of the peritoneum along the line of the incision and upon either side a distance of at least one inch. It extended through the opening and was adherent to the hernial sac. These adhesions were severed, but so much bleeding resulted that the mass was ligated in sections and cut off. Two or three portions of intestine were also adherent to the sac, but could be pushed back into the abdomen. The intestinal adhesions were so firm that

portions of the sac were cut out and left adherent to the intestines. Finally the sac was entirely freed, but was found to have several holes in it, made by liberating the intestines and omentum. The redundant portion was cut off and the edges brought together with a continuous catgut suture. The abrupt resisting borders of the hernial opening were freshened and brought together by a row of interrupted catgut sutures, and finally the skin, which had been trimmed so that the edges nicely met, was brought together and held in close apposition by interrupted silkworm-gut sutures.

The patient was kept in bed four weeks, wearing an abdominal bandage constantly. The hernia seemed cured when she arose from the bed. A few weeks later a small hernial protrusion was found at the lower portion of the site of the former hernia. We attempted the use of the abdominal truss, but it gave pain and was abandoned. The hernia gradually increased in size until it became as large as when operated upon. The patient suffered constantly; she vomited frequently and was habitually constipated. Three months after the first attempt to cure the hernia another operation was done for the same purpose. This time the external covering of the hernia—viz., the scar and integument—was very thin. Beneath this was a very thin layer of fat, and then came the sac, a thin but distinct membrane appearing like new tissue; to it several loops of intestine were adherent. The same general plan was adopted as in the former operation. Kangaroo tendon was used for the buried stitches, and deep through-and-through stitches of silkworm gut were used in addition to the two rows of buried sutures and the row for the skin.

The deep stitches were allowed to remain in eighteen days. The wound healed perfectly without any pus. This time our efforts were successful, but a small hernia appeared through a weak point in the abdominal walls at the site of one of the deep stitches passed in the original abdominal section.

In the third case the same general plan of operation was adopted. The sac was united by the cobbler's stitch. The hernia was cured. As in the former case, kangaroo tendon was employed for the buried stitches.

The introduction of this suture by Marcy has been of signal benefit. The highest degree of success cannot be attained in the operation for the radical cure of ventral hernia without making

use of buried stitches. It cannot be denied that catgut is frequently disappointing. Kangaroo tendon has failed me but a single time, and then suppuration occurred. It has served me so much better than catgut, I shall not again willingly use the latter suturing material.

Edebohls, in the excellent article from which I have quoted frequently in this paper, urges the advantage of avoiding the opening of the peritoneum for the radical cure of this form of hernia. Unquestionably in some instances his method will be found efficient; yet it has not been demonstrated to be less dangerous than the method of opening the sac, and, furthermore, it does not permit of the liberation of the loops of intestine, in which case herniæ are so often adherent to the sac, and which may be a cause of pain or obstruction of the bowels. Further experience is needed to demonstrate which is the superior method.

The ideal method must have for its end the restoration of the structures involved to their normal relations. This ideal cannot be fully realized, yet the nearer we approach to it the more enduring and satisfactory will be the beneficial results of our efforts.

To this end we should endeavor to restore the continuity of the peritoneum and to unite similar structures. This can best be done by incising all the coverings of the hernia. We have already shown the edges of the peritoneum are not infrequently ununited and widely separated. Here the sac will be composed of newly formed tissue and may be entirely removed down to the margin of the peritoneum, the edges of which should be freshened and brought together and the remaining structures sutured after the plan already described.

My conclusions are :

1. Ventral hernia as a sequela of laparotomy is of frequent occurrence.
2. The pain and other disturbances it induces vary greatly in different cases.
3. The causes of the morbid condition are depraved condition of the system; lack of tonicity of the tissues; imperfect coaptation of the divided structures; failure to bring like tissues together; a partial separation of the agglutinated edges of the incision by coughing, vomiting, or straining at stool, and weakening of the line of union by abscesses of the abdominal walls;

too early getting up after laparatomy: heavy lifting, slips, falls, or habitual cough. These all may either directly or indirectly induce the hernia.

4. Preventive means are suggested by studying the foregoing conclusions.

5. A properly fitting bandage is of service in preventing a separation of the united tissues, and will often prevent an increase in the size of the hernial mass.

6. The method of treatment adopted must depend upon the severity of the symptoms induced by the hernia and the efficiency of a truss or abdominal supporter to prevent the hernial mass from protruding through the opening.

7. A well-adjusted elastic abdominal supporter, with an underlying compress of pasteboard or other flexible yet resistant material, has afforded my patients greater relief than the trusses for abdominal hernia.

8. When the truss or abdominal supporter fails to afford relief and the pain and suffering are great, or the patient, in consequence of the hernia, is incapacitated for the performance of her usual work, an operation for the radical cure of hernia is indicated.

9. The plan of operation may vary somewhat. Small herniæ that can be perfectly reduced, and large herniæ that have no adherent omentum or loops of intestine and which can be perfectly reduced, may be cured by dividing the hernial covering down to the sac, inverting it, and uniting, by rows of buried sutures, the structures over it after the method of Edebohls. In all cases when the sac is composed of new tissue, the edges of the peritoneum being widely separated, or in those cases in which the omentum or intestines are adherent to the sac, and in all cases in which the hernial mass cannot be completely returned to the abdominal cavity, the sac should be opened, the adherent omentum and intestines separated, and sufficient of the sac cut away to allow the edges to be united without tension. Buried stitches of kangaroo tendon should then be employed to unite the edges of similar structures—viz., peritoneum to peritoneum, fascia to fascia, etc.

10. Deep stitches of silkworm gut or silver wire, including all the layers of the abdominal walls, and left in twelve to fourteen days when the walls are tense, will yield the best results.

A PROMPT AND RADICAL CURE OF MAMMARY ABSCESS BY A NEW METHOD OF AFTER-TREATMENT.¹

BY

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I wish to describe to you a method of after-treatment for mammary abscess which has given brilliant results in the way of shortening the period of healing, no matter how extensive the necessary incisions have been. The method was developed in Mount Sinai Hospital of New York City by following Dr. Paul F. Mundé's suggestion to use sponge compression in such cases. My predecessor as house surgeon at that institution, Dr. George B. Cowell, now of Bridgeport, Conn., used the method in a few cases. During my one-year term as house surgeon we had what I may call an epidemic of abscesses of the breast, having about thirty cases. I thus had abundant opportunity to perfect the technique of the method, which I did, until I was able to have a breast heal in from eight to twelve days after the operation. When we consider that by the current methods of operating and after-treatment it takes many weeks and often months to have an extensive mammary abscess heal, it is evident how brilliant an improvement this method introduces in the treatment of this class of cases.

I shall not burden this paper by a recital of histories. The histories of the last score of my cases—that is, after the technique of the method had been perfected and so used—were so uniformly the same that it would be of no value to give them. Moreover, abscess of the breast is such a common trouble that this method can readily be tried, and what I shall say of its results easily verified.

The method refers entirely to the after-dressings; but in order that this method of after-treatment and dressings be applicable it is absolutely necessary that the operation should have

¹ Read before the Chicago Gynecological Society, April 15th, 1892.

been properly done. I may be allowed, therefore, to say a few words about the operation itself.

Mammary abscesses are currently divided into premammary, interstitial, and retromammary. A premammary abscess should be incised and treated like any other superficial abscess. Retromammary abscesses are very rare, and I have no experience with any. The vast majority of mammary abscesses are interstitial, and my method has to do only with them. They should be operated upon as soon as there is good suspicion of pus. Aspiration is not reliable for early diagnosis, as the pus formation begins in a number of little foci, and it would be mere accident if one of these would be struck by the needle. Moreover, as this trouble always occurs in actively secreting breasts, a little pus that the needle would find would be so diluted by milk which would most likely come along that it would be hard to find it even with the microscope. By the time that the needle plainly finds pus any competent surgeon would know, from the history of the case and the appearance of the breasts, that pus is there, without aspiration.

In order that no large milk ducts be cut, all incisions should of course be radial and should begin a little distance away from the areola. The incisions should be made extensive enough, my rule being through the gland in depth; and in length, outward to the circumference of the gland. Small or shallow incisions are delusive. The structure of the breast is such that pus easily riddles it in all directions, and, unless the incisions are large enough, tracts of pus easily elude search and to that extent delay the healing of the case.

My method of operating is as follows: Over that segment of the breast in which appears the largest focus of pus I make an incision as just described. I then insert my finger into the cavity opened and seek in every direction for tracts of pus or disintegrated tissue. I use the finger as a probe and use considerable force. Healthy tissue will not be perforated easily by the finger; only broken-down tissue can be easily penetrated. If there appears to be only that one cavity, and it does not extend to more than an inch to either side of the incision, then that one incision will do. If, however, the abscess cavity extends quite a distance to one side, or, as occurs in most cases, there are leading from it one or more sinuses to perhaps other accumulations of pus, I push my finger into the pocket or into

the sinus and make a second radial incision two or three inches from the first. The accumulations exposed by the second incision are explored in the same way as the first ones. Further incisions are made if necessary. Six or seven such radial incisions, equally distant around, will be as many as necessary for a breast wholly riddled with pus tracts and accumulations. No blind pockets or recesses should be left. A sinus should be pushed through with the finger, so as to communicate also with the next parallel incision. Hemorrhage is easily controlled. Only a few ligatures are ever necessary—frequently none.

After everything has thus been freely laid open, a large, sharp spoon is taken, and, while the irrigator plays, all débris is scraped out of the cavities and sinuses. The curetting must be thoroughly done if prompt healing is desired. Healthy tissue will not be injured, for it does not yield to the sharp spoon as ordinarily wielded. Only granulation tissue and necrotic matter yield to the sharp spoon.

When everything has thus been scraped and washed out, all of the incisions and the communications between the incisions are packed with strips of sterilized gauze which has been soaked in one-per-cent carbolic; more such wet gauze is piled on the breast, and the dressing is covered with a sheet of rubber protective; then the bandage—that is, a moist dressing—is applied. The first change of dressing is made in about thirty-six hours. The strips of wet gauze are all pulled out of the wounds. All the discharge will be found to have been absorbed into the dressing. The wounds look fairly clean and healthy. They are then washed out gently with any kind of an aseptic solution, and lightly repacked with strips of wet carbolic gauze. This second moist dressing is then completed like the first. These two moist dressings are essential to the success of the method. An ordinary dry iodoform-gauze dressing will not do at all; if it be used after the operation the case will take the ordinary prolonged suppurating course.

Twenty-four hours later the second change of dressing is made. All gauze is very gently pulled out and the wounds again lightly irrigated. *Care and gentleness in handling the breast is the watchword from now on.* At this second change of dressing scarcely any discharge will be found. The wounds will now look clean, healthy, and granulations will be seen springing up everywhere.

The breast is now dressed as follows: The wounds are not packed this time. A thin layer of gauze is laid on to cover the whole breast. A large, flat sponge is now taken (one large enough to cover the whole breast, and one which has been made surgically clean in the usual way); it is soaked in a one-per-cent solution of carbolic and then squeezed out as dry as it possibly can be. The sponge is laid on the breast and covered with a sheet of rubber protective or oiled silk. A breast bandage is now put on, and put on as tight as force can make it; a roller bandage will hardly do, as with it we cannot bring enough of pressure to bear on the breast. A better bandage for these cases can be made by using two triangular cloths. One is carried across the chest, the ends pulled together under the opposite axilla with considerable force and then pinned; the other is carried over the opposite shoulder, the ends also pulled together with force and pinned. Cotton should, of course, be used where indicated, for the comfort of the patient. The idea of the dressing is to compress the breast against the wall of the chest. The elasticity of the squeezed-out wet sponge comes in admirably here; it gives a uniform pressure, such as no other known substance will give. A very important point is that the breast should be put up in the dressing in such a manner that it remains elevated. The nipple should be in the centre of the breast. The breast should not be compressed in the pendent position; the centre of the compressed area should be over the nipple. If the breast be compressed in the pendent position, the lips of the incisions, instead of coming naturally together, will remain apart and so large raw areas will remain after the depths of the incisions will have united.

The compression should be great. The bandage should be as tight as the patient can bear; it may be so tight as to almost stop thoracic breathing when first put on. The patients soon and easily learn to bear such pressure with patience; moreover, this, as every kind of bandage, becomes loose a few hours after being applied. The sponge should be, as I said, squeezed or wrung out as dry as possible—the drier the better, because the more elastic. To add to the compression after the bandage was put on, I frequently resorted to the following expedient: I everted the upper edge of the dressing and poured into the sponge a few ounces of one-per-cent carbolic solution; that

caused the sponge to swell up a little and added that much to the compression.

Twenty-four hours later, the woman being in the recumbent position, the dressing is again changed. The bandage and sponge are removed. The gauze is very gently pulled off, so as not to tear any adhesions. The breast is gently irrigated off. No attempt is made to irrigate *through* any wounds; only the surface of the breast is washed off. Scarcely any discharge will be found. There will be no signs of any inflammation or congestion. The wounds will be found closed, the raw surfaces almost everywhere adherent. We have now, on the fifth day after the operation, a practically aseptic wound. If the breast has been properly elevated, and kept elevated by the dressing, even the edges of the skin will be in proper apposition. The adhesions are as yet, of course, very fragile, very easily torn; therefore the utmost gentleness must be used in handling the breast, so as not to tear them. A wet-sponge-compression dressing, as at the last dressing, is again applied.

Such a dressing, with all its details and care, is repeated every day. On the eighth day, as a rule, rarely later than the tenth day after the operation, the union of all the cut tissues will be firm and complete, and the case is really cured. If the adaptation of the edges of the wounds has been good, even the skin cuts will be united properly and the case will require no further attention. Usually, however, at some parts along the lines of the incisions, skin adaptation has not been complete, and there remain now at these places superficial, granulating areas or lines. These heal over in a few days by proper strapping; or, if we wish to hasten matters, we may do small plastic operations to cover these areas.

The wet-sponge-compression dressing need not be applied after the eighth or ninth day, for by that time union is good. For the remaining few days any ordinary dry dressing will do.

It will be seen that by this method of treating mammary abscesses we endeavor to accomplish the following:

1. The operation must be radical, as described. All pus cavities and tracts to be made freely accessible; then all pus, débris, necrotic and unhealthy tissue eurented and washed out, only healthy tissue to be left behind.

2. Then, by means of the moist dressing applied in the manner described, we subdue the inflammation, remove any con-

gestion, and so bring further pus formation to a standstill. Drainage is secured through the wet gauze packed into the amply large incisions. Granulation formation is begun. All this is accomplished in about three days.¹

3. By means of continuous, firm, uniform pressure all further suppuration is prevented and the surfaces of the wounds are made to adhere together and unite, much as in union by first intention.

That compression will stop some kinds of suppuration has been frequently observed, but use has never been made of it in a systematic way. This is no place to enter into the theory of it; I shall treat of it in a future paper.

I have above described a typical course and a typical treatment for a mammary abscess. If treated in the manner described we very rarely get variations from such a course. It is remarkable how these cases all run about the same way and heal in about the same time, whether the patient is a wretchedly nourished woman or one who is otherwise in perfect health. In looking over the notes of my cases I find that the quickest time was eight days and the longest was thirteen.

If a case comes to us after the acuity of the inflammation has passed and there is present only a well-circumscribed abscess, and if the abscess cavity is not very large, we may dispense with the wet dressing and endeavor to get union by compression immediately after the operation. There is nothing lost if it does not take place, for we have only to apply a wet dressing for a few days and then try compression again, when it will succeed. I have had two cases in which the parts united immediately after the operation.

I hope that in the future all cases of abscess of the breast will be treated on the plan just described. The results are so brilliant, compared with those obtained by the current method, that the latter should be abandoned. By the current method of making small incisions, inserting drainage tubes, using dry dressings, thus allowing the pus cavities to slowly discharge and granulate up, healing is prolonged to many weeks and even many months. We all have seen these tedious cases going from physician to physician, from dispensary to dispensary, going

¹ For the theory of action of the moist dressing see writer's article, "The Modern Moist Dressing: its Indications and Technique," Chicago Medical Recorder, April, 1892.

about with discharging sinuses in the breasts and drainage tubes sticking in the sinuses. Not only does such prolonged suppuration do injury, as any other prolonged suppuration does, but it leaves behind it a great deal of cicatricial tissue—that is, a chronically indurated breast. That this may be a predisposing cause of carcinoma need not be told.

The method described in this paper brings about a complete cure in from eight to twelve days. The breast is not left indurated. I have frequently examined breasts that have been treated this way, and found no induration and no evidence of any former trouble except the skin cicatrices. The healing being, not by granulation, but practically by first intention, no cicatricial tissue is formed.

I need not state that breasts operated upon and treated in the above manner do not in the least lose their milk-producing function.

If a patient comes with a breast having sinuses in it, the sinuses being the result either of spontaneous discharge of pus accumulations or of inefficient modes of operation and dressing, I treat the case about the same way as described in this paper. Radial incisions are made which fully expose these sinuses; they are explored and curetted out in the way described; then the wet dressing and subsequent sponge compression as in the regular cases.

OPERATIVE EXPERIENCE WITH ECTOPIC GESTATION.¹

BY

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(With three illustrations.)

THE subject selected for my paper before you to-day is one which concerns not only the specialist but the general practitioner; not only the man in the city, but equally well one in the country with practice scattered far and near. And it seems to

¹ Read by invitation before the Orange County Medical Society, at the Thrall Hospital, Middletown, N. Y., October 11th, 1892.

me that the responsibility of the latter far surpasses that of the former, for in dealing with cases of ectopic gestation the element of time is all-important; and in the country distance means time, and assistance is often hard to obtain.

The literature of the subject I shall not review, for since March 3d, 1883, when Mr. Tait, of Birmingham, performed his first successful operation, the reports of cases of ectopic gestation and operations for the same have been frequent; in fact, the medical journals abound in such cases and in discussions concerning them.

My purpose to-day is to review carefully my own operative experience with such cases, present you the results, both bad and good, and a few conclusions which seem justified by the experience.

CASE I.—Mrs. K., native of Germany, age 31; admitted to the Roosevelt Hospital September 4th, 1889, with the following history: Married nine years; has had three children and one miscarriage; last confinement in 1885, four years previous to admission. Menstruation first appeared at 15; periods regular till three or four years ago, since then has had dysmenorrhea and occasionally menorrhagia.

Present illness began seven weeks ago; she had skipped two menstrual periods and believed herself pregnant. Seven weeks ago she began to flow, and this flow has continued most of the time until the present. Four weeks ago she passed some blood clots and thought she had a miscarriage. She has lost flesh, strength, and appetite. On admission, temperature 99° F., pulse 85; urine normal. Bimanual examination shows a large, soft mass in posterior fornix, pushing uterus forward and to the right; cervix soft; uterine cavity enlarged, measures three inches.

September 7th, abdominal section. On opening the peritoneum a large amount of dark blood welled up, followed at once by bright blood. It was evident that the sac felt before operation had recently ruptured, perhaps during the administration of ether, as the patient struggled violently then. The left broad ligament was now clamped close to the uterus, controlling the active bleeding; the blood clots were then removed by hand and sponges, and a partially necrosed, foul-smelling placenta, larger than a man's hand, was found attached to the posterior wall of the uterus, lining the pouch of Douglas and extending up on the

rectum. This was carefully peeled off and the gestation sac removed. The hemorrhage was free, but was checked by irrigation with a large amount of hot water and by iodoform gauze packing about a glass tube. Patient did not rally, but died of shock and sepsis at the end of thirty-six hours. Thus my first case was an unsuccessful one—unsuccessful in that I did not make the diagnosis before operation, and, what is of chief impor-

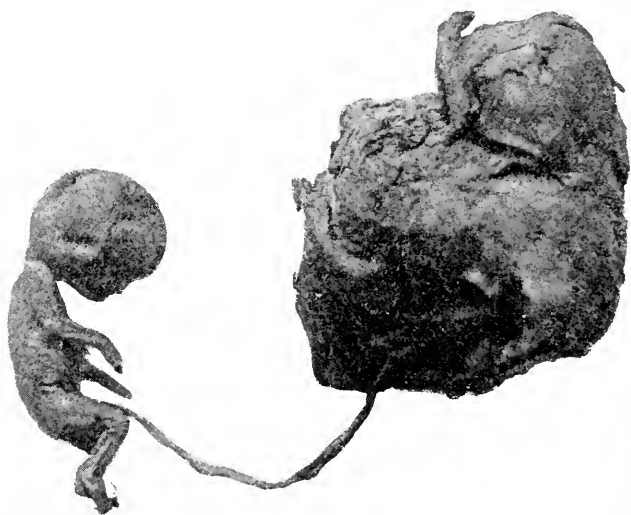


FIG. 1.—Case II. Operation February 20th, 1890.

tance, that it had a fatal issue. Riper experience would have enabled me to handle the case more skilfully; but necrosis of the placenta had already begun, and this, I think, was the cause of her sepsis and death. I am happy to say it is the only unsuccessful one of my series.

CASE II.—Mrs. S., Orange, N. J., native of United States, age 37; seen by me in consultation with Dr. Seward, February 19th, 1890. Married sixteen years; has had two children, the

last fourteen years ago. Menstruation first appeared at 12: periods regular: duration five to six days, without pain: last menstruation November 1st, 1889.

January 19th, while at stool, had a severe attack of pain, felt faint, and passed a small, fleshy mass from vagina. Was afterward confined to bed with an attack of peritonitis (high temperature and pulse, tympanites, etc.). From this she improved and was able to walk about the room a little, when she was seized, February 14th, with another attack, and again on February 18th, the day before I saw her. I found patient very anemic and sallow, with pulse 122, temperature 102.2° F., respiration 42. Bimanual examination disclosed an elastic mass filling the pelvis, reaching nearly to the umbilicus, and pushing uterus up behind symphysis pubis. Diagnosis, ectopic gestation with three successive ruptures, viz., January 19th, February 14th, and February 18th. The hour was late for operation that day, so it was postponed till the morrow.

February 20th, abdominal section, assisted by Drs. Seward, Locke, and Dowd. On opening peritoneal cavity the omentum appeared much injected and adherent to the mass felt before operation. On gently separating the adhesions a large quantity of blood clots appeared; introducing my hand into the sac, I easily removed the fetus and placenta, a photograph of which I here present (Fig. 1). The abdomen was irrigated with hot water and drained by means of a glass tube with iodoform gauze packed all about it. In this case the sac was so adherent that it was not removed. Time of operation, twenty-five minutes.

Patient made a perfect recovery. Convalescence was retarded by an abdominal sinus, which healed March 23d, 1891. Highest temperature after operation, 104.6° ; highest pulse, 146; temperature above 100° F., fourteen days; temperature above 101° F., six days.

CASE III.—Miss C., native of Ireland, age 21: admitted to the Roosevelt Hospital September 6th, 1890. Unmarried: had one child two years ago. Menstruation first appeared at 14: periods regular till June 28th, her last regular period. She admits exposure to pregnancy July 23d. She did not menstruate in July, but August 24th, after several days of sharp pain in the left iliac region, she began to flow. The following day she had a severe rigor.

She was first seen by me in the out-patient department of the hospital. She had the breast signs of pregnancy, and on the left side of the uterus could be felt an elongated, elastic mass. The diagnosis of ectopic gestation was made, the site being the left tube and unruptured. There were no vacant beds in the hospital that day, and patient was told to come the next day; but if in the meantime she had any severe attacks of pain and felt faint, to call a cab and come at once, and she would be cared for.

Six hours later she was brought to the hospital in a state of shock; pulse 135, temperature 100° F.; body covered with a cold perspiration. She gave a history of sudden sharp pain in the left iliac region, followed by syncope.

Bimannual examination disclosed the fact that, instead of the distended tube felt in the afternoon, there was a large hematoma filling the left side of the pelvis, bulging into vagina, extending above the pubes, and surrounding the rectum. As the rupture had evidently occurred between the folds of the broad ligament, an ice coil was applied and quiet enjoined. The patient steadily improved for nearly two weeks. September 17th: Examination showed that the hematoma on the left side had diminished in size, but a small, tender mass was developing on the right side of the uterus. September 20th: The mass in the right fornix has increased considerably in size and is distinctly elongated. This examination was made in the morning. That same afternoon patient complained of very sharp pain in the right iliac region. This pain continued, and temperature rose to $104\frac{1}{5}^{\circ}$ F.

Abdominal section at midnight. On opening the peritoneal cavity a quantity of free pus escaped. It was found that a pyosalpinx on the right side had ruptured. This was clamped, abdomen irrigated with a large amount of hot water, then ligature applied and the right appendage removed. The left side was carefully examined, and there could be distinctly felt the hematoma previously described. It was evidently undergoing absorption, and was left intact. Patient made a rapid and perfect recovery, and was discharged cured October 11th. Highest temperature after operation, 100.8° , the following morning; highest pulse, 130; temperature above 100° F., one day.

Here was a case of ectopic gestation which was seen and diagnosed before rupture occurred, again after rupture had occurred

between the folds of the left broad ligament, and again the resulting hematoma was examined from within the abdomen, at the time of operation, for ruptured pyosalpinx which subsequently developed on the opposite side.

CASE IV.—Mrs. L., native of Ireland, age 27; admitted to the Roosevelt Hospital July 11th, 1891. Married at 19; has had two children, the last six years ago; since last confinement has suffered with pain in the back. Menstruation first appeared at 14; periods regular and painless, duration six to seven days;

Ovary and part of tube wall.

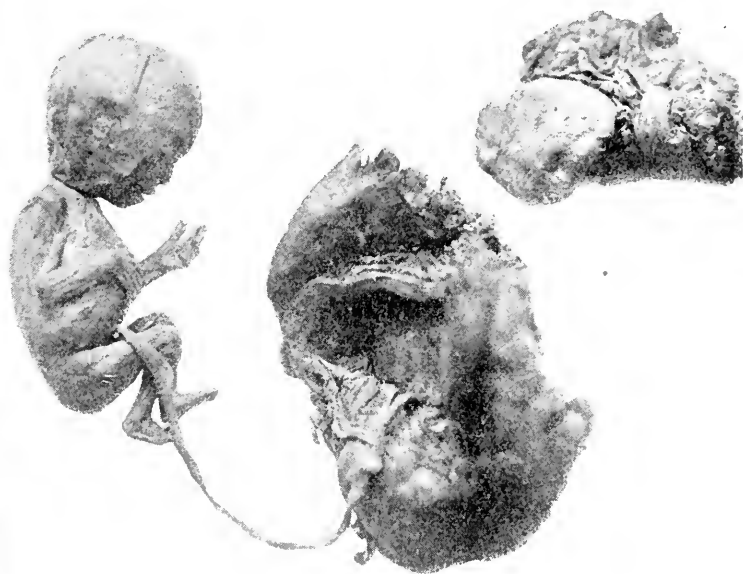


FIG. 2.—Case IV. Operation July 13th, 1891.

last menstruation occurred in latter part of April. The last of May patient was attacked with severe, cramp-like pain in the left side of abdomen, radiating in all directions. Since then she has had four attacks, each worse than the preceding. June 6th, following an attack of pain, patient became unwell, and after each succeeding attack has flowed for one or two days. She does not remember passing any shreds; attacks of pain cause patient to feel faint. Abdomen and breasts have enlarged. On admission, temperature 99.6°, pulse 118.

July 12th, the day after admission, patient had another attack

of severe pain, causing her to vomit; she felt faint, and in a few moments was covered with profuse perspiration.

July 13th, abdominal section. Peritoneal cavity found full of dark blood. The left tube had ruptured; it was clamped on both sides of the rupture, ligated, and removed. The right appendage was found diseased and was also removed. The fetus and placenta, a photograph of which I here present (Fig. 2), were found free in the abdominal cavity; these were removed, also numerous blood clots. Abdomen was irrigated and drained with iodoform gauze. Highest temperature after operation, 102.4° , on July 14th; highest pulse, 140, on July 14th; temperature above 100° , at intervals for nine days. Patient made a perfect recovery.

CASE V.—Mrs. H., native of Ireland, age 32; admitted to the Roosevelt Hospital July 18th, 1891. Married nine years; has had one child, seven years ago. Since childbirth has suffered with pain in left side and in the small of the back. Menstruation first appeared at 16; periods regular, duration three to four days; last normal period occurred April 15th. She did not menstruate in May, but in the latter part of the month had a severe attack of pain in her left side. June 5th, during a similar attack of pain, and seven and one-half weeks from her last menstruation, she began to flow, and has flowed almost constantly until admission. The attacks of pain have been several times repeated, and with increasing severity. The last attack caused her to fall down upon the floor where she stood. She has passed shreds twice. She says she has twice been given up by her physicians to die. On admission, temperature 99.6° F., pulse 80.

Bimanual examination reveals a mass behind and to the left of the uterus; the mass feels like blood clots. Diagnosis of ectopic gestation was made.

July 20th, abdominal section. No free blood found in the abdominal cavity. The mass was found to be a gestation sac formed by the left tube, which had evidently ruptured and the blood extravasated from it shut off from the general peritoneal cavity by peritonitic adhesions. The sac was ligated and removed. The right appendage was then examined, found diseased, and removed; abdomen irrigated and drained by a glass tube with iodoform gauze packed around it. Patient made an uninterrupted recovery. Highest temperature, 102° F.; highest

pulse, 116; temperature above 100° F. at four different times during her convalescence—July 21st and August 4th to 7th.

CASE VI.—Mrs. C., colored, native of United States, age 33; admitted to the Roosevelt Hospital June 28th, 1892. Married sixteen years; four children; no miscarriages; last child four years ago. Menstruation first appeared at 16; periods regular, duration three to four days, with cramp-like pains before the flow.



FIG. 3.—Case VI. Operation June 28th, 1892.

She is said to have had pelvic inflammation ten years ago. Since the birth of last child patient has been well and has menstruated regularly until last May, which month she skipped, her last menstruation occurring April 20th. During May and June she has felt pain at times in her breasts, and thinks them growing larger; has had morning sickness, facial neuralgia of late, and pain in the small of the back.

Five days ago patient had a sudden, sharp, shooting pain in the

lower part of the abdomen, so severe that she fell from the chair where she was sitting. This pain lasted for two hours; her abdomen became swollen and tender; has felt bad ever since; defecation and micturition painful.

This morning, just before patient was brought to the hospital, she had a second severe attack of pain, worse than the preceding. She again fell from her chair and lost consciousness for the moment. Her body was covered with cold, clammy perspiration, she was nauseated, and had a faint bloody vaginal discharge. On admission, temperature 97° , pulse 80 and feeble. Examination of breasts showed an increase of pigment and the presence of colostrum.

Bimanual examination revealed a uterus much enlarged, studded with fibroids, and to the right a small, tender mass. Diagnosis, ruptured ectopic gestation complicated with fibromyomata. As soon as the patient had rallied in part from her shock she was etherized and placed on the table in Trendelenburg's position. The abdomen was opened and considerable free blood found, the source of which was not at first evident. On lifting up two pedunculated fibroids the right tube was found to be the seat of an ectopic gestation, and the blood found free in the abdominal cavity had come through the fimbriated extremity of the tube, the wall of the latter remaining intact. In other words, we had to deal with what Bland Sutton calls a "tubal abortion."

The tube was easily ligated and removed, but it was then found that in raising the fibroids to reach the tube their capsules had been lacerated at their pedicles and they were bleeding freely. The two fibroids were enucleated and an attempt was made to check the hemorrhage by suturing, but this failed. It then seemed best to extirpate the uterus entire. This was done, ligating the broad ligaments in section. The cavity was sponged dry, drained by iodoform gauze through the vagina, and the abdominal wound then closed. The patient made an uninterrupted recovery. Temperature never reached 100° F.; highest pulse, 124. A photograph of the specimen I here present (Fig. 3). On cutting open the uterus a perfect decidua was found and is clearly seen in the photograph. The tube was opened and microscopic sections made of its contents; these gave good examples of chorionic villi.

Having reviewed the cases in detail, let us now reconsider

them with a view to symptoms, pathology, diagnosis, and treatment.

In five of the six cases there had been a period of sterility varying from four to fourteen years, and this we find the rule; yet it is not infallible, for one had been pregnant two years before.

In all the cases there was a history of some disturbance of menstruation, usually an amenorrhea, although patient had previously been regular. In most of the cases I have seen there has been first a cessation of menstruation, then a sudden sharp pain, followed by menorrhagia and metrorrhagia lasting several weeks. This attack of pain in the cases of the above series has occurred on an average of eight weeks from the last menstruation—the earliest six weeks, as in Case IV.; the latest ten weeks, as in Case II. With the appearance of the menorrhagia some shreds are frequently passed from the uterus. These are pieces of the decidua, or, rarely, the decidua may be passed entire. The passage of these shreds often deceives the patient, who thinks she has had a miscarriage and that her trouble is over. Cases I. and II. are examples of this.

Sometimes all the subjective symptoms of early pregnancy are present and the patient herself believes she is pregnant.

The breast signs of pregnancy are often visible and are of importance in diagnosis; in three of the above cases these signs were distinct.

In the case seen before rupture occurred the only symptom was a feeling of weight and discomfort, and this accounts for the fact that so few cases are seen before rupture. Patients during the ante-rupture period suffer little, and either believe themselves free from all trouble or the subject of a normal pregnancy. It is only when the initial hemorrhage occurs, with a sudden sharp pain and a feeling of faintness, that they are led to believe that everything is not as it should be.

In all the cases of ectopic gestation which have come under my observation the original site of the pregnancy has been the Fallopian tube. The interstitial variety I have never met with, and consequently shall not speak of in this paper.

Concerning the cause of ectopic gestation we know very little; but the view that it is due to some previous disease of the tubal mucous membrane, preventing the normal passage of the ovum, seems fairly well borne out by the symptoms of pelvic pain and sterility present in so large a proportion of my cases.

As to what occurs at the time of one of these attacks of sharp pain and faintness, I believe it usually, if not always, means one thing—hemorrhage.

As the fetus develops it soon outgrows the power of accommodation of its unnatural surroundings, and a solution of continuity results. This may (1) either occur between the chorion and the tubal mucous membrane, and hemorrhage take place from the tubo-chorionic vessels into the tubal sac, distending it and causing pain by this distention; or (2) the tubal sac, thinned already by distention and weakened by the ingrowths of the chorionic villi, may suddenly rupture, either from a traumatism, be it ever so slight, or from a hemorrhage into it, the pain being caused both by the rupture and by the escape of the tubal contents with hemorrhage.

Three methods of escape from the tube are recognized, and all three are exemplified by cases in the above series:

1. Through the wall of the tube into the peritoneal cavity, as in Cases I., II., IV., and V.

2. Through the tubal wall down between the folds of the broad ligament, as in Case III.

3. Through the fimbriated extremity of the tube—called by Bland Sutton “tubal abortion”—as in Case VI.

That the rupture into the peritoneal cavity of a tube the seat of an ectopic gestation is not necessarily fatal at its first occurrence is abundantly proven by cases in this series. In all the cases which ruptured in the above manner there was evidence of such an occurrence at least twice, and in some of them even more.

The hemorrhage in the primary rupture is often slight. The opening in the sac may be small, and the fetal product in its partial escape may plug this opening and so check further hemorrhage. The effused blood is then shut in by peritonitic adhesions, thus forming a new sac; this in turn being distended and perhaps ruptured by a succeeding hemorrhage.

Now, as to diagnosis, there are three points of importance:

1. As to the existence of ectopic gestation.

2. Whether the sac has ruptured or not.

3. Whether rupture has occurred into the general peritoneal cavity or between the folds of the broad ligament.

The symptoms which the writer would emphasize as leading to a diagnosis of the existence of ectopic gestation are the following:

1. Some change in the menstrual history, usually an amenorrhea followed by menorrhagia.
2. Subjective symptoms of pregnancy.
3. Physical signs of pregnancy in breasts and cervix, with a doughy mass behind or at one side of the uterus.
4. If the primary rupture has occurred, a history of sudden, sharp pain and the symptoms of shock and hemorrhage.
5. Usually a history of sterility for several years.

Few opportunities are afforded for examining an unruptured ectopic gestation. When such an opportunity is furnished we find, coupled with the symptoms of early pregnancy and pelvic pain, an elongated mass, the shape of a distended tube and feeling like a hydro- or pyosalpinx, with perhaps a rather more marked pulsation of blood vessels about it. This differs from the irregular, doughy mass found after rupture.

I doubt very much whether a differential diagnosis is possible between a rupture of a tubal sac through its wall into the peritoneal cavity, and an expulsion through the fimbriated extremity of the tube—*i.e.*, “tubal abortion.” I certainly did not make this differential diagnosis in my cases. In both there are the symptoms of shock and internal hemorrhage. The only difference which suggests itself is that in the “tubal abortion” the hemorrhage is usually less in amount, and consequently the constitutional disturbance is usually less.

The differential diagnosis between an intraperitoneal rupture and one subperitoneal between the folds of the broad ligament, is not only often possible, but it is of great importance, for on it depends, according to the views of the writer, the method of treatment.

The physical signs which enable one to make a diagnosis of a subperitoneal rupture of an ectopic gestation, as distinguished from an intraperitoneal rupture, are the following:

There is a distinct, circumscribed mass or tumor. This mass lies low in the pelvis; it lies chiefly on one side, but may extend around behind the uterus; it bulges into the vagina, and can usually be felt extending horizontally above the brim of the pelvis, as though the folds of the broad ligament were opened out and the peritoneum lifted from the pelvis. The uterus is pushed toward the opposite side and forward. If the mass is situated on the left side a stricture of the rectum is produced by it. In addition to these physical signs our diagnosis is further confirmed by

the rallying of the patient from shock, and evidence that the active hemorrhage has ceased.

Concerning the treatment of ectopic gestation the writer's individual experience, as also his observation in the care of cases belonging to other men, lead him to the following convictions:

1. When the diagnosis is made before the rupture of the tube the best interests of the patient are subserved by abdominal section and the removal of the pregnant tube; and this I would state recognizing full well the claims of the advocates of galvanism and faradism. The following reasons force me to the above conclusion: Before the rupture occurs the operation for removal of the tube is one of the simplest of abdominal sections. The operation at this period may be performed with selected, trained assistants and with careful attention to all antiseptic details. By this operation the patient is removed from the danger which momentarily threatens her—the danger of rupture and fatal hemorrhage before surgical aid can be secured. She is also saved the trouble which is liable to arise from a tube once pregnant but not removed.

2. When the product of conception has escaped from the tube into the peritoneal cavity, either through the wall of the tube or by "tubal abortion," the only safe rule of action is abdominal section, removal of the tube, and cleansing the abdomen. The writer believes that in not a few cases the product of conception has escaped from the tube with slight hemorrhage, both fetus and blood clots have been absorbed by the peritoneum, and the patient has recovered without operation. While frankly admitting this as a possibility, we are forced to confess that we never can foresee those cases in which the hemorrhage is to be slight, and while one has survived such an experience many have perished. A few hours, nay, even a few moments, will sometimes change the condition of a woman from one of apparent health to that of imminent death from internal hemorrhage. This short time is our only opportunity to save our patient. Shall we neglect our opportunity?

3. When the rupture of the ectopic-gestation sac has occurred between the folds of the broad ligament, excepting the rare condition where the life of the fetus continues, operation is not indicated unless suppuration occurs or unless repeated hemorrhages threaten a secondary rupture into the peritoneal cavity. In both these conditions the writer's method is vaginal incision

and drainage. Four cases of hematosalpinx which resembled cases of ectopic gestation have been operated on by me, but, as positive proofs of the true condition have been absent, they have not been included in this paper.

62 WEST 50TH STREET.

CYSTOMA OVARII GLANDULARE ASSOCIATED WITH HYDROPS FOLLICULI.

BY

J. G. CLARK, M.D.,

Gynecological Assistant in the Johns Hopkins Hospital,
Baltimore, Md.

(With three illustrations.)

This report, from the service of Dr. H. A. Kelly at the Johns Hopkins Hospital, serves well to illustrate how much valuable information and light upon the previous history may often be secured from the careful investigation of apparently simple cases.

The history, briefly detailed, is that our patient developed a large encysted abdominal tumor in 1887, which, after persisting for seven months, suddenly lost its distinctive form, to be replaced by an ascitic accumulation which soon passed off by diuresis. Four and a half years later a large glandular ovarian cystoma appeared, which was removed by cystectomy.

A minute examination of the cyst revealed some very interesting conditions, illuminating the history and satisfactorily explaining the previous symptoms. Macroscopically we found on the surface of the polycystic tumor an opening formed by the rupture of an old cyst over four years before. At the point of rupture there was a firm, indurated ring of scar tissue, retracted so as to evert the inner surface, exposing a bunch of smaller cysts. A vegetating mass of glandular tissue sprouted from this opening, formed by the old rupture, into the peritoneal cavity. Microscopic investigation of the marginal ring demonstrated old inflammatory process with adhesions, showing that the rupture was an old one. Enucleation of the mass was followed by rapid and uncomplicated recovery.

The more detailed history is as follows: Mrs. A., æt. 53, native of Scotland, married thirty-three years; VIpara; the oldest child 32, the youngest 20 years of age. All labors normal. One miscarriage, with no untoward symptoms following. Family history: Father died at 85 years of age of senile debility; mother living and well. No history of tumor or cancer in her family. Personal history: Health of patient good previous to present illness.

In August, 1886, when 47 years old, five months after the menopause, she noticed her abdomen enlarging. She consulted her family physician, who diagnosed pregnancy. Six weeks later, upon again consulting him, he advised a prolonged course of ergot, as he now suspected myoma uteri. A mass the size of a cocoanut, well defined in its outline, situated above the pubes and inclining slightly to the left, could now be distinctly felt by the patient. The ergot treatment was continued for a week, when she had an attack of excruciating pain associated with dragging sensation in the lower part of her abdomen, which lasted for a week. In December of the same year she again had a similar attack, having been free from discomfort for the two preceding months. The pains were spasmodic and had many of the characteristics of true labor pains. Her physician treated her condition lightly and told her that it would soon pass off. The pain, however, continued for eight days, the paroxysms becoming more severe, when it suddenly disappeared with instantaneous relief, and, as the patient expresses it, she felt "as if she were in paradise." The tumor was observed to have disappeared upon cessation of the pain, nor could it any longer be felt by the patient; there was, however, no decrease in the general enlargement of the abdomen. The tumor had evidently ruptured and its contents had been discharged into the abdominal cavity. There was neither vaginal flux nor increased urinary discharge following this attack, but the ascites which followed the rupture increased gradually until it caused a symmetrical distention of the abdomen. There was no pain accompanying this enlargement, and she felt quite well, barring the discomfort occasioned by the distention. About this time her breasts enlarged and a considerable quantity of clear fluid could be expressed from them. In February, two months after rupture of cyst, the ascites was still marked and associated with dyspnea and slight icterus. Soon after this a syncopal attack followed a slight exertion, and

later she suffered from nausea and vomiting, following which there was an enormous discharge of urine. This brought about a rapid decrease in the ascites, but still she did not completely regain her health, and on the advice of a friend consulted a gynecologist in Jersey City, who told her that there had been a cystic tumor of the left ovary which had ruptured. From this time on she steadily improved until August, 1891, when she again began to suffer from pain in the lower part of the abdomen. By September, 1891, she noticed for a second time a marked enlargement of her abdomen, which steadily increased up to the time of her admission and operation in the Johns Hopkins Hospital, June 13th, 1892.

With the second enlargement of the abdomen has appeared a prolapsus uteri, increasing as the abdomen grew in size. Examination shows the cervix flush with the vaginal outlet. During the last four or five months she has decreased rapidly in weight, growing thinner in all parts of the body except the abdomen.

Status præsens.—Moderately well nourished, appetite good, bowels regular. Suffering from pressure symptoms due to abdominal distention. When on her feet there is a frequent desire to urinate. No cough; heart sounds normal; slight arrhythmia. Lungs normal. No edema or varicosities of lower extremities.

Physical Examination by Dr. Staveland, resident gynecologist, on admission of the patient to the Johns Hopkins Hospital.—Inspection: Abdomen full, high, and vaulted, apparently distended by a large tumor; not tense; abundance of fat in abdominal wall. Measurements of abdomen: From umbilicus to left anterior superior spinous process, $20\frac{1}{2}$ centimetres; from umbilicus to right anterior superior spinous process, $20\frac{1}{2}$ centimetres; from umbilicus to ensiform cartilage, 20 centimetres; from umbilicus to pubes, $18\frac{1}{2}$ centimetres; circumference of abdomen at umbilicus, $95\frac{1}{2}$ centimetres—nearly that of a woman pregnant and at full term. Percussion shows dulness low down in both flanks and in the inguinal regions, extending upward on the left side almost to a level with umbilicus and about 5 centimetres to the right of the linea alba. Tympany over right side; coronal resonance except in the line of the descending colon, where it is obliterated. Per vaginam: Outlet relaxed, posterior vaginal wall prolapsing; cervix small, rather soft, lies

within $2\frac{1}{2}$ centimetres of the outlet. On left side an ill-defined, resisting mass can be felt. On right side there is a general sense of fulness, nothing more definite detected. Diagnosis, cystoma ovarii sinistri. Treatment, removal by cystectomy.

Operation June 16th, 1892, by Dr. Kelly. Incision 12 centimetres in length, evacuating four litres of yellow fluid of syrupy consistence from the abdominal cavity, when a conglomerate mass of tumors was exposed filling pelvis and lower abdomen. An attenuated omental adhesion, 14 centimetres in length, extend-



FIG. 1.—Tumor lifted out of abdominal incision on right; large unruptured cyst on left.

ing down to the pelvic floor back of uterus, was ligated and cut, after which a *left ovarian tumor* was turned out of the abdomen with a broad pedicle running back beneath the sigmoid flexure at the brim of the pelvis; a part of this was transfixed with a needle and carrier introducing the silk ligatures by which the whole of the left broad ligament was tied off from cornu uteri to pelvic wall and the tumor removed. A small piece of jelly-like tissue in the fleshy part of the pedicle, distal to the ligature, suggested a possible extension of some of the adenoid elements of the tumor into the pelvic side of the stump; this part of

the broad ligament was therefore again tied off lower down and an additional segment cut off.

On the right side an ovarian cyst as large as a fist was lifted out of the pelvis and removed, after transfixion of its pedicle with the needle and carrier. A hematoma about the size of an English walnut formed on the right side, at the pelvic extremity of the broad ligament, during the operation; this was evacuated and a fresh set of ligatures were thrown over the ovarian vessels at this point. The large quantity of syrupy

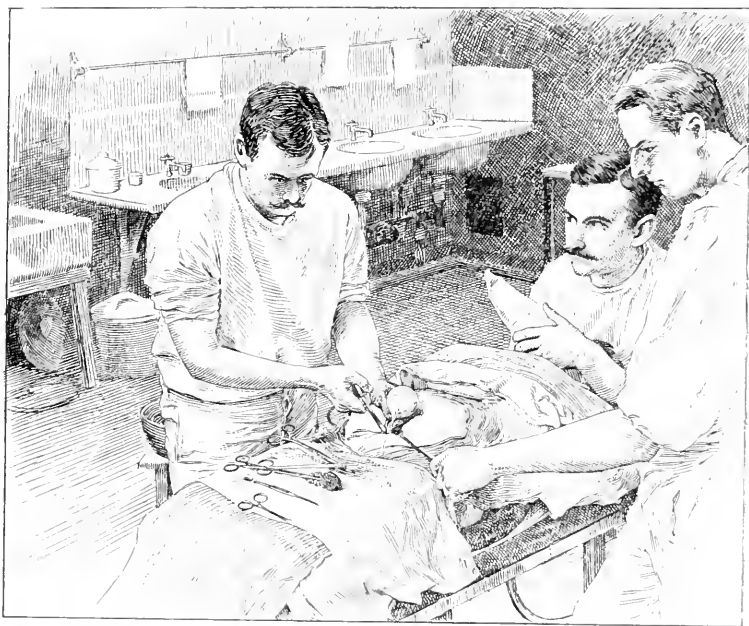


FIG. 2.—Transfixion of pedicle with needle and carrier in removal of large Graafian follicle.

fluid interpenetrating all the viscera gumming up the sponges and rendering its removal difficult, the abdominal cavity was thoroughly irrigated with six litres of normal salt solution (sixty grains to the quart), diluting and making it easier to remove the gluey mass.

Duration of the operation, thirty minutes.

The peritoneum was closed with a continuous catgut suture. The skin and muscular portion of abdominal walls were brought together with silkworm-gut tension sutures passing down to peritoneum, about half an inch apart, after which catgut coaptation

sutures united accurately skin and superficial fascia. No drainage used. Wound dressed with a celloidin occlusive dressing. No nausea during recovery from anesthesia. Temperature 102° on second day after operation, falling to 99° on the third day, and reaching the normal on the seventh day, at which time the silkworm-gut sutures were removed and union found perfect. Urine normal before and after operation. Discharged from the hospital, cured, August 1st, 1892.

PATHOLOGICAL REPORT BY DR. J. WHITRIDGE WILLIAMS, ASSISTANT
IN GYNECOLOGY.

Macroscopic Appearance.—Right side: Hydrops folliculi. Fallopian tube 7 centimetres in length, 0.3 centimetre in diameter at its uterine and 0.5 centimetre at its fimbriated extremity, which is open and somewhat spread out over the ovary. Tube appears perfectly normal, mesosalpinx intact. The ovary is converted into an egg-shaped tumor 8 by 6 centimetres; its surface is generally smooth and has the typical appearance of ovarian tissue, some few follicles shimmering through it. No adhesions. Tumor is filled with a clear, limpid, watery alkaline fluid, specific gravity 1.004. The tumor is monocystic; its internal walls are pale, glistening, and covered by non-ciliated, cuboidal epithelium; greatest thickness of its walls being 1½ millimetres. Apparently a hydrops folliculi.

Left side: Tube 10 centimetres in length, 0.2 centimetre in diameter at its uterine and 0.4 centimetre at its fimbriated extremity, which is free. Parovarium normal. The ovary is converted into a large, irregularly shaped cystoma, and, roughly speaking, may be divided into two portions. One, to which the ligamentum ovarii is attached, is 8 centimetres in diameter; its external surface is generally smooth and dull white in color, resembling normal ovarian tissue. Arising from its posterior and inferior surface, by a bridge of tissue 2 by 4 centimetres, is an elliptical tumor mass, 15 by 8 centimetres, which presents the typical appearance of an ovarian cystoma. Its surface is generally smooth and of a dull white, fibrous appearance; here and there on its surface are what appear as cut-out areas, through which small, thin-walled cysts protrude. The regularity of the surface of the tumor is broken by the projecting portions of its component cysts. An interesting condition may be noted at the posterior and lateral end of the first-mentioned

portion of the tumor, where there is an opening about 6 centimetres in diameter, the edges of which appear rounded and firm, and in places are rolled back and adherent to the external wall of the cyst, not as though they were due to a recent rupture. From the opening a mass of small, clear cysts, resembling a bunch of grapes, protrudes.

On section both portions of the tumor present the typical appearance of a multilocular ovarian cystoma composed of cysts of all sizes from 1 millimetre to 8 centimetres in diameter. The cysts are filled with a more or less gelatinous alkaline fluid,

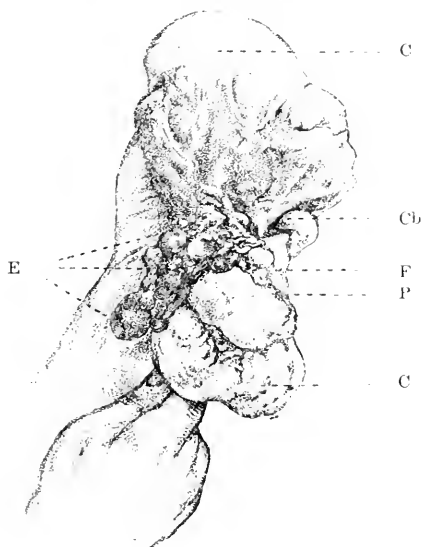


FIG. 3.—C C, cyst; E, everted remains of old ruptured cyst; F, Fallopian tube; P, pedicle; Cb, cicatricial band—the remains of the wall of the ruptured cyst.

whose color varies from clear watery to straw color, and has a specific gravity of 1.020. The contents of the small cysts are more gelatinous than those of the larger ones. Scrapings from the inner walls of the cysts show that they are lined by a fatty epithelium, which varies from round to high cylindrical in shape.

Microscopic Appearance.—Sections through the wall of the cyst of right ovary show that it is composed of typical ovarian tissue, in which hyaline material, but no ova or follicles, are seen. The interior of the cyst is lined by a single layer of almost flat epithelium, and the tumor conforms in all respects to a hydrops folliculi.

Sections through the cystoma of the left side reveal the typical structure of a glandular cystoma. In some portions of the tumor the stroma is distinctly ovarian in structure, containing typical hyaline masses, but at no point are ova or follicles found. The epithelium is high cylindrical in shape, and in many portions of the tumor is separated from the underlying stroma; some of the smaller cysts are completely filled by desquamated epithelium. Sections through the everted edge of the ruptured cyst show conclusively that the rupture is not of recent origin. The external wall of the cyst is perfectly smooth to within a short distance of the margin of the rupture; at the margin of the rupture it becomes raised above the level of the rest of the cyst wall and presents numerous glandular ingrowths over its surface, which are continuous with similar glandular formations on the interior of the cyst.

The raised margin is connected with the external wall of the cyst by only a small band of tissue, which indicates the original adhesion between the everted edge of the rupture and the main wall of the cyst. Just beneath this point is a somewhat triangular cyst lined by a single layer of very low epithelium, representing the germinal epithelium, which originally covered the cyst, and which was folded back in the eversion of the ruptured margin and then completely closed off from the exterior by the formation of adhesions.

The adhesions present the same appearance as all the rest of the surrounding tissue, showing absolutely no trace of inflammation, and thus prove that the process is an old one.

Diagnosis, hydrops folliculi of right ovary; cystoma ovarii glandulare of left side, with old rupture of one of the cysts.

MANAGEMENT OF THE THIRD STAGE OF LABOR.¹

BY

W. D. PORTER, A.M., M.D.

It is universally conceded that during the first and second stages of normal labor Nature needs but little assistance. With reference to the third stage, however, there is no such unanimity of opinion.

¹ Read before the Cincinnati Obstetrical Society, October 20th, 1892.

The proposition that the natural powers, unaided, should expel the placenta, even though the expulsion be delayed for hours, is in striking contrast to the teaching that it should be delivered promptly and that the process should be under the management and control of the accoucheur.

The purely expectant plan was proposed by Hunter, and was a protest and a reaction against the rude, hasty, and hazardous methods of extracting the placenta in vogue among his contemporaries. Beneficial results followed this remonstrance, but the method was finally abandoned by Hunter, who realized that his zeal in denouncing irrational and dangerous interference had carried him to the other extreme.

Within recent years there has been a revival of the expectant plan by certain German obstetricians. Ahlfeld, Winckel, Kaberske, Dohrn, and others have reported favorable statistics of the method. The fact that it gives good results in hospital practice, where there is some one to act in case of hemorrhage or other urgent symptom, does not necessarily recommend it to the general practitioner. It is a specious argument to urge that Nature is able to bring to a successful conclusion the physiological function of parturition. Doubtless she would be amply able, were there not so many artificial hindrances thrown in her way.

If we study the effects of our civilization upon the reproductive forces of woman, we must admit that it is futile to demand, as the adherents of the expectant plan do, that the case be left to Nature. The case is virtually taken out of the hands of Nature years before the labor occurs. Improper clothing, insufficient exercise, prodigal inroads on the physical and nervous energies of the developing woman, by vicious and indiscriminating methods of education and exacting rounds of social duties and pleasures, all react disastrously upon the forces which must meet the ordeal of parturition. It is not, then, strange that the requirements of the first and second stages of labor frequently leave the woman unable to complete the process without incurring risk to herself.

The problem of aiding Nature at this time, without introducing new elements of danger thereby, was studied by Credé, who, about four decades ago, announced his method of placental expression. At first but little notice was taken of it, but by persistent and zealous advocacy he succeeded in demonstrating its

value, and now it is everywhere a familiar procedure and the adoption of its principles is well-nigh universal.

Barnes and other English writers deny the originality of Credé's method, claiming that it is but a revival of practices introduced earlier by the Dublin school. On this point Playfair¹ justly says that while uterine pressure was recommended by many English writers, "the distinct enunciation that the placenta should be pressed and not drawn out of the uterus we owe to Credé and other German writers." Mundé² says of the prevailing method in England, which was introduced by Spiegelberg, that "it is but a modification of Credé's method, and that to him belongs the priority of having established a systematic process for placental expression."

With reference to the originality of the procedures involved, it appears that allusions reaching much further back than the Dublin school may be made. Engelmann³ has made a study of labor among "primitive people," and in speaking of certain manipulations, including the Credé method, says: "Although these are recent and valuable additions, so recent that they are not practised by any but the more advanced obstetricians, they are the most natural, the simplest, and the oldest helps in midwifery in use among all primitive people, and at all times, from the day of the ancient Hebrews and Arabs to that of the North American Indians. Although constantly practised by primitive people for thousands of years, these methods have been recently rediscovered by learned men, clothed in scientific principle, and given to the world as new."

All this, however, does not diminish the honor due Credé nor detract from the value of his method. By diminishing the danger of post-partum hemorrhage and the liability to septic infection it has, I doubt not, been as great a boon to woman as has the forceps or ovariectomy.

Experience has shown that some modifications may with advantage be made in the method. Credé delivered the placenta usually within five minutes after the birth of the child. When we consider the great degree of retraction that must occur after the child leaves the uterus, the interval allowed by the author of the method certainly seems inadequate, and apparently justifies

¹ "System of Midwifery," fourth American edition, p. 292.

² "Obstetric Palpation," p. 105.

³ AMERICAN JOURNAL OF OBSTETRICS, vol. xv., p. 960.

the criticism, so frequently made, that such rapid expression is not conducive to the greatest safety against hemorrhage. Moreover, the separation of the placenta from the uterine wall takes place after the birth of the child, and is caused by diminution in the area of the placental site. This diminution is caused by uterine retraction. The separation sometimes occurs from a continuation of the pain which expels the child; oftener it is accomplished by the succeeding pain, and occasionally only after several pains have occurred.

It is impossible to cite the numerous theories and modifications of theories regarding the time and manner of placental separation. The statements above made are in harmony with the teachings of most obstetricians. The practical points are that the placenta is not usually detached at the inception of the third stage, and that, until it is detached, efforts at expression are clearly wrong.

Another valuable modification is in regard to the force used in expressing the placenta. If it be sufficient to propel the placenta out of the uterus through the vagina and in front of the vulva, it involves two dangers. First, the momentum of the mass may be sufficient to tear off and leave behind portions of the membranes that could easily be removed by gentler methods. The second danger is that of damaging the uterus or its appendages. In case the presence of the placenta in the vagina fails to excite contraction of that viscus, it is necessary to press the uterus well down into the pelvis to dislodge the placental mass. This manoeuvre involves pretty rough usage to the organ, and in case of a diseased appendage it may do irreparable injury. As to the time consumed and the force employed, my practice is as follows: Soon after the birth of the child the uterus is grasped with both hands, but no compression is made until one or two pains have occurred; then with each pain firm compression is made, but, as a rule, not so forcibly as to cause the patient to protest; nor is the uterus crowded down into the pelvis. In nearly every case the placenta can be felt to slip down from its attachment. Then, without trying to carry the process to the point of complete expulsion, an aseptic finger is carried into the vagina, hooked into the lower portion of the placenta, and gentle traction made, sufficient to overcome the friction of the forward portion against the vaginal walls and to prevent the thickening and folding of the mass from the *vis a tergo*. At the same time the other hand makes downward pressure over

the fundus in conjunction with uterine contraction. After the placenta is out of the uterus it is moved forward gently, and if the membranes do not readily follow they may be extracted during relaxation of the uterus.

The importance of the delivery of the after-birth is too often underestimated, and the physician goes about it in a perfunctory manner and with the impression that the labor is virtually ended. He frequently introduces a finger or fingers into the vagina until he finds and removes the object of his search. In this connection, and in conclusion, permit me to emphasize a precaution which I consider more important than any or all previously mentioned. Though it is superfluous, in this Society, to call attention to the susceptibility of the puerperal woman to infection, I take the liberty of quoting briefly on this point from the writings of Garrigues¹ as follows: "The rapid involution going on in her genitals and adjacent parts constitutes a strong current in the direction of her skin, her kidneys, her lungs, and her heart—organs destined to circulate and throw out the waste material of her body. Thus a real suction is formed by which septic material is likely to be carried from the genitals to the inner organs."

Whatever opinion the physician may entertain concerning the details of asepsis in midwifery, he can hold no uncertain view as to the necessity of having a clean hand for making a vaginal examination, particularly in the third stage; for at this time there are abrasions and usually one or more lacerations of the mucous membrane, frequently extending into the deeper tissues. An examination with an unclean hand under such conditions results in literally grinding infectious material into the gaping arteries, veins, and lymphatics. Before making such an exploration the vulva should be cleansed and the hand not only thoroughly washed with soap and water, but subsequently held in an antiseptic solution, preferably bichloride of mercury, sufficiently long to insure an aseptic condition. No one can neglect such a precaution on the plea that it consumes time, for at least an hour should elapse from the birth of the child until the physician's departure. Moreover, the time consumed by this precaution would amount, in a lifetime, to less than the extra time which would be required by a single case of puerperal septicemia, to say nothing of the moral obligations involved.

¹ "Aseptic Midwifery," p. 6.

A CASE OF THORACOPAGUS.¹

BY

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Professor of Obstetrics, Chicago Medical College.

(With four illustrations.)

THIS specimen of "joined twins," as well as the history of the pregnancy and confinement, were given to me by my friend Dr. E. M. Halstead, who has kindly consented to be with us this evening. The case is interesting as a contribution to teratology; it is also of great value from the point of view of the practitioner, inasmuch as the course of gestation and of labor occurred under responsible observation.

This double monster consists of two relatively equal female forms, which are disposed face to face, and which are confluent at the anterior aspect of the thorax and upper abdomen. Each twin has one head, one neck, two upper and two lower extremities. The right twin is slightly larger than the left; its neck, in particular, is longer. I have made the following measurements:

	Right twin.	Left twin.
Length.....	41 cm.	39 cm.
Head:		
Occipito-mental diameter.....	13 "	10 "
Occipito-frontal diameter.....	10.5 "	9 "
Biparietal diameter.....	8.5 "	8 "

The weight of the double monster is 2,818 grammes.

At the common umbilicus there is present a hernia of the funis, of elliptical outline, measuring 7.5 centimetres in the transverse diameter and 3.5 centimetres in the conjugate.

The placenta, 350 grammes in weight, is single and has one chorion and one amnion. The funis, 65 centimetres in length, is single and contains one umbilical vein and two umbilical arteries.

On account of the sudden appearance of the parents and their peremptory demand of the specimen for burial, I was not

¹ Read before the Chicago Gynecological Society, June 17th, 1892.

permitted to make an exhaustive dissection. However, on cutting down, the twins were seen to be united by a single sternum, anteriorly and posteriorly, and to possess a common thoracic and abdominal cavity. The abdominal and thoracic viscera were arranged as follows:

1. A large, difform, double liver; the rest of the abdominal

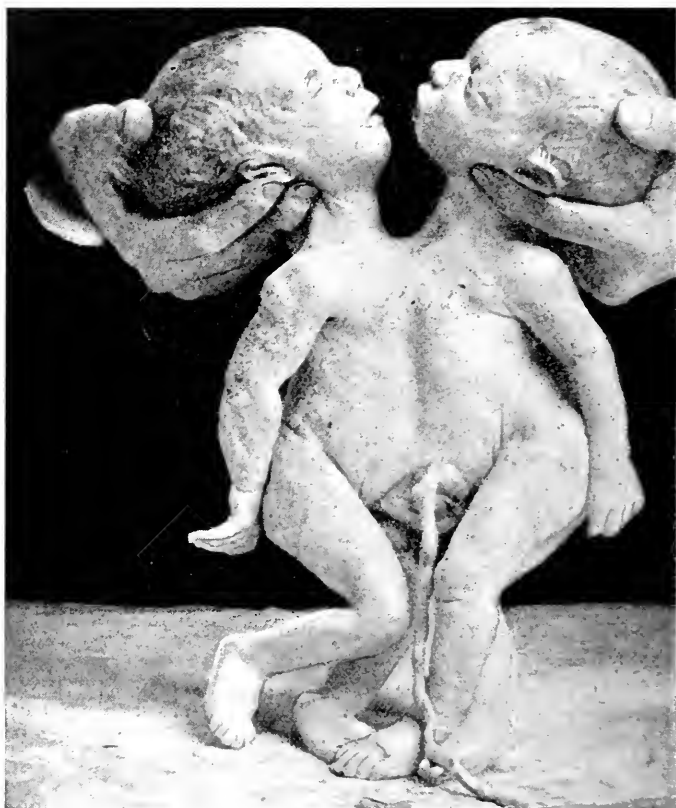


FIG. 1.—Thoracopagus. Anterior view, showing cord.

viscera double, except the jejunum and a portion of the ileum, which are single.

2. The lungs double; two separated hearts (each in its own pericardium), of which the left one is small and rudimentary.

In a double monster of this kind important internal organs are in some degree confluent, and therefore disturbed in development, so that the individuals are still-born or perish soon

after birth. Dr. Halstead informs me that this specimen perished in the act of delivery.

Genesis.—In connection with this specimen I beg to show an example of homologous twins, derived from a case of acute hydramnion, that came under my observation some days since. The twins, though of different sizes, are of the same sex—fe-



FIG. 2.—Posterior view.

male; each is enclosed in its own amnion. The placenta is single and there is only one chorion.

All observers agree that homologous twins and double monsters are developed out of a single ovum. Further, the majority of observers are agreed that homologous twins and double monsters are developed out of a single blastula. Occasionally, it is true, the ancient and obsolete hypothesis is revived that these beings originate in a single ovum that contains two blastulæ—that is, an egg with two distinct yolks: that, under favor-

able conditions, these twins become fused. This hypothesis has been abundantly disproved. From the incubation of eighty double-yolked eggs of the hen, Panum, of Kiel, noticed the occurrence of separate twins, in some cases both male, in others both female, in still others both male and female. In one case a single chick was developed out of one yolk and a double monster out of the other yolk. There are at least three recorded cases in the human subject in which the woman has given birth at the same time to a single fetus and to a double monster.

Starting out with the admission of a single blastula, teratologists differ greatly as to the further mode of development.



FIG. 3.—Showing superior junction.

There are at least two hypotheses. The first—*hypothesis of fusion*—is that as soon as the blastodermic membrane is visible there are present two germinative areas, either completely or incompletely separated, out of which develop either homologous twins or, by fusion, a double monster. Claudius, Panum, and B. S. Schultze support this view. The second—*hypothesis of fission*—is that the germinative area is originally single, but that subsequently it undergoes fission that may be complete or incomplete. In the first case homologous twins result: in the second, a double monster. The sponsors of this notion are Reichert, Dönitz, Förster, Bruch, Dittmar, Virchow, and Ahlfeld, and it is the generally received hypothesis of the day. I have looked in vain for a clear statement of this matter in Fisher's generally excellent paper on "Teratology" in Wood's

"Reference Handbook of the Medical Sciences" (1889). Rauber's "radiation" and Gerlach's "bifurcation" hypotheses are ingenious modifications respectively of the fusion and fission hypotheses.

According to the classification of Gurlt and Förster, there are three general groups of double monsters:



FIG. 4.—Showing inferior junction: hernia of the umbilical cord.

A. *Terata katadidyma* (τέρας, τέρατος, "a monster," κατά, "from above downward," and δίδυμος, "a twin." "Monsters duplex from the superior or anterior part." The cerebro-spinal axes are arranged after this diagram (Fig. 5, *a*). Ahlfeld, out of Förster's collection, has relegated to this group 261 examples.

B. *Terata anadidyma* (ἀνά, "from below upward." "Monster duplex from the inferior or posterior part" (Fig. 5, *b*). 86 cases.



FIG. 5.

C. *Terata anakatadidyma*, "monster duplex both from the superior and the inferior part" (Fig. 5, *c*). 135 cases.

To this third group our case belongs. It is an example both of fission of the cephalic end from above downward and of the caudal end from below upward.

The particular name of the monster is sternopagus tetra-brachius. When the double monster appears as two individuals simply joined in some particular region, it is customary to

designate it by the part of junction and the ending *-pagus* (from *πῆγνυμι*, to unite).

Thoracopagus is the form of symmetrically developed double monsters that occurs with greatest relative frequency. Of all the forms of thoracopagus, sternopagus is observed oftenest. The female sex predominates in the ratio of 4 : 1 (Ahlfeld).

The mother alleges, as the determining cause of the monster, the sight, at the third week of pregnancy, of two street-car horses lying in a mangled heap. This item in the history of the case gives occasion to allude to the doctrine of maternal impressions. Firm belief, by the bye, in this notion even at the present day is not limited to old women. Goethe in his "Elective Affinities," Sir Walter Scott in the "Fortunes of Nigel" and "Redgamtlet," Dr. Holmes in "Elsie Venner," base incidents on this conviction. Herbert Spencer in his "First Principles" quotes Lotze in support of this notion. Fordyce Barker, Parvin, Busey, Dabney, Spitzka, and others have all urged the import of this influence. Time does not permit the full discussion of this subject. So far as double monsters are concerned, there is no evidence that maternal impressions have anything to do with the case. Furthermore, it is a fact that there is not a malformation known that is peculiar to the human race. Corresponding malformations, identical in external configurations and in internal structure, occur among the lower orders, both in the wild and in the domesticated state, viviparous and oviparous—dogs, cats, horses, rabbits, pigs, reptiles, fishes, crustaceans, insects. Indeed, analogous malformations are observed in the vegetable kingdom.

As regards the mechanism of labor, double monsters are divided by G. Veit into three groups :

1. The first group includes examples of anterior or posterior duplicity in which the doubled part is relatively small. The doubled part is either the head or the breech, and this doubled part possesses for the mechanism of labor the same mechanical moment as when in a single child the part is relatively large—*e.g.*, hydrocephalus. Here belong diprosopus, cephalothoracopagus, and dipygus. In moderate degrees, with good pains, labor terminates spontaneously ; in higher the forceps or craniotomy is indicated. The diagnosis is made, when a disturbance in the mechanism of labor is apparent, by the introduction of the whole or half hand.

2. The second group includes those examples of anterior and

posterior duplicity in which the bond of union is slight and the doubling relatively complete. Here belong craniopagus, ischiopagus, and pygopagus. It is uncommon for these monsters to cause very difficult labor.

3. The third group includes examples of anterior and of parallel duplicity of the different types of dicephalus and thoracopagus. To this group our case belongs. These monsters commonly present the greatest mechanical difficulty in labor. Yet this is not always the case. The Tocci brothers were the product of a first pregnancy, and they were born spontaneously, after a short labor, before the midwife could reach the bedside. The history of Dr. Halstead's case is as follows:

Mrs. R., American, 29 years old, brunette, one hundred and thirty-five pounds in weight, five feet four inches in height. Two previous pregnancies; eldest, girl, age 8; youngest 6, also girl; both well formed and healthy. Menstruated last about July 15th. No unusual symptoms, excepting slightly larger than in previous pregnancies. Labor pains began about 10 A.M. March 28th. Bag of waters broke at about 2 P.M. I was called at about 3:30 P.M., when I found three feet prolapsing. At first the diagnosis of twin pregnancy was made, but later, when hand was introduced to shove one back into uterus, the nature of the complication was ascertained. The cervix uteri was nearly completely dilated at that time, and after further dilatation the fetus was delivered by extraction, considerable force being necessary to accomplish this. Patient made good recovery. Labor lasted about eight hours, extraction requiring about one and one-half hours.

A CASE OF ACCIDENTAL HEMORRHAGE DURING LABOR.¹

BY

S. MARX, M.D.,
New York.

I REPORT the following case in detail, as it seems to me to possess features of decided interest.

Mrs. L., primipara, æt. 27. Always in perfect health; family and previous history all that could be desired. Married about

¹ Read before the Obstetric Section, New York Academy of Medicine, March 24th, 1892, and by invitation before the New York Medical Union.

one year. Came to see me when about seven months pregnant, a perfect picture of health. All organs apparently normal. Urine, twice examined, showed nothing abnormal. On December 31st, 1891, was called to see her in labor about 3 p.m. She had been having hard pains since 1 o'clock. Examination revealed os uteri half-dilated, very thin and sharp. Head in the V. L. O. A. in the median pelvis. Pelvic examination shows normal condition, except a suspected narrowing at the outlet, of minor degree. Perineum long and tense. Membranes had ruptured shortly before I arrived. Child was living. Uterus well contracted. One thing impressed me as peculiar—that the very vigorous contractions were almost painless. Os slowly dilated until 5 p.m., when nothing could be felt of it. Then the character of the pains slowly changed; they became weak and inefficient; at the same time the patient complained of a constant, severe pain in the small of the back. *On account of the character of the labor and the os being fully dilated, the head well down*, I gave, about 5 o'clock, ten drops of ergotol. This did not materially increase the vigor of the pains, although the head descended well behind the pubic arch. I found the uterus somewhat flabby, but otherwise nothing abnormal. About 7 o'clock, everything going on to a favorable normal delivery, child alive, patient feeling and looking well, I went into the next room. About 7:25 nurse called me and said the patient felt weak. She looked well enough, but the pulse was a trifle rapid and weak; uterus soft, not contracted; pains very weak. I sent for assistance to administer chloroform, in order to apply the forceps. No evidence of external bleeding; child alive. Dr. Shaw administered chloroform. As I was about to make a final examination before applying the forceps, I noticed a stream of blood flowing over the head. Extraction proved difficult. Blood came so quickly that I could not see condition of the perineum. Patient now growing weaker. Delivery hastened. Large child born, deeply cyanosed, nine pounds and eight ounces. Perineum intact. Dr. Shaw instantly expressed the placenta, which was apparently normal. Cord unusually long; with it came a not unusual amount of blood and clots. Bleeding continued in a steady stream. Gave very hot intra-uterine injection, first plain, then with liquor ferri subsulphatis; then ice introduced, externally and internally, of no avail. Dr. Shaw passed his hand into the uterus and stated that, whilst the uterus con-

tracted well posteriorly, it would not do so anteriorly, but remained very flabby. Collapse now became profound, and, as Dr. Shaw's hand was in utero, he used, at my suggestion, Zweifel's method of compression and thus checked the bleeding, except for an insignificant amount. The patient's head was lowered; heat applied; hypodermics of camphor, ether, caffeine, and sparteine given, together with oxygen and nitrite of amyl inhalations. I now gave high rectal infusions of a physiological salt solution, very hot, in all one and a half quarts, which were retained. Hypodermics of the saline solution were also given. In spite of all this stimulation I saw no result; my patient was still in the profoundest collapse, but bleeding had stopped. Meanwhile I sent for Dr. Coe. He transfused fifteen ounces of a salt solution into the vena mediana. It had a decidedly bad effect; patient instantly became deeply cyanotic. I now packed after the method of Dührssen, in and around the uterus and vagina, using a very large amount of iodoform gauze. I should have packed much sooner, but I felt sure that any further insult would cause a fatal shock to the nervous system. I accordingly waited till transfusion had been commenced. Up to this time no pulse could be felt. A half-hour later Dr. Coe, at my request, again transfused, and now with some result, even though it was insignificant. Nitroglycerin, digitalin, caffeine, camphor, ether, whiskey were pushed all night. At 7 A.M. the patient was in excellent condition and feeling comfortable; pulse good and 112, temperature 100°; no bleeding; no local tenderness. But this proved but the beginning of the end, for during the day she began to present symptoms of an acute virulent septicemia. At 7 P.M. pulse 168; she developed a phlegmasia alba dolens sinistra; some fetor of lochia; no local pain or tenderness. The packing was accordingly removed. All went well till I removed six tampons (I had introduced eight, nearly a yard long apiece). In removing the one next to the last in the uterus a sharp bleeding occurred, with relaxation of the uterus, showing a returning atonia uteri. Only after faradism had been used a half-hour—the strongest current of a small French battery—did the uterus contract, although bleeding had stopped for some time. She again collapsed, and after some time she came around again, but only fully recovered after I had transfused fifteen ounces of a saline solution.

January 2d, 1892: Pulse very weak, 168, temperature 99°;

vomits everything. All medicines and food stopped by mouth except drachm doses of very hot water. Hot beef tea and brandy per rectum, fifteen ounces every three hours. Decided rotten odor to lochia. Cured with large blunt curette; brought away nothing. Intra-uterine injection of 1 : 8,000 bichloride. 7 P.M.: Pulse 178; extreme dyspnea; bloody sputum. Posterior lower right lobe, crackling, loud breathing; evidently pulmonary embolus. Treatment continued; vomiting less. January 3d, 1892: Pulse 138, temperature 100.5°. Feels well—abnormally so, I thought; pulse good quality; lochia, slight fetor; no vomiting, no pain, no tenderness; takes large amount of nourishment and one ounce of brandy every hour. Suddenly, at noon, a sinking spell; pulse gone at wrist; utter and complete collapse. Nurse thought she was dead. Numerous hypodermics revive her, and when I arrived a half-hour later pulse was good but very rapid; but same spells return all afternoon, pulse bad and wavering, 160 per minute, intense dyspnea. Treatment the same. Atropine given as a respiratory stimulant. January 4th: Passed a very comfortable night; good amount of nourishment; no nausea, no return of sinking spells. 4 A.M.: Temperature 101.6°, pulse 144. Treatment the same plus a fresh digitalis infusion, 1 : 180, half an ounce every three hours; intra-uterine injection given. 8 A.M.: Temperature 101.6°, pulse 132. 5 P.M.: Temperature 100.8°, pulse 129. 10:30 P.M.: Temperature 101.6°, pulse 116. Feels very good and looks well. January 5th: Up to 3 A.M. condition the same; after that, sinking spells came on; pulse very bad and irregular, sometimes beating five to six for fifteen seconds, then the next fifteen seconds it could not be counted; no signs of bleeding, no dyspnea, no pain nor tenderness; extreme restlessness. Stopped all treatment except camphor and ether every hour. Condition the same until 1 P.M., when, with a slight convulsive tremor, the patient suddenly expired.

Such is the history of this painful case, one of the most rapidly fatal I ever treated. I purposely give the history at length, to show what was done, or if important therapeutic agents or manœuvres were omitted, what might have been done. Were I asked what caused the hemorrhage I candidly admit I do not know. That it was not caused by a ruptured uterus is proven by all symptoms. Neither was it from a deep tear of the cervix involving the circular artery. Hemorrhage from cervical tears

as a rule occurs after the birth of the fetus, except when they are so deep as to cause an incomplete uterine rupture; these are usually due to traumatism by hand or forceps. In my case dilatation was complete at 5 p.m., and the first signs of hemorrhage, with symptoms of a commencing collapse, occurred over two hours later. Another factor to be thought of is a premature separation of the placenta. I do not think it played any part in my case, for it usually occurs before labor has set in, or very early in labor, and is nearly always due to traumatism; and, where this is excluded, it is the result of very violent and forcible pains. In the cases heretofore reported there always appeared to me to be factors which reached deeper than mere fatty degeneration of placenta and so forth. I cannot dissociate my mind from the fact that local disturbances in the uterine muscularis were at the bottom of all the trouble, and believe that in these cases of accidental hemorrhage a paralysis, or, if you please, a paresis, of a localized area of the uterine wall occurs, allowing the sinuses to remain patulous. What this paralysis is due to I cannot say with any degree of positiveness—most probably to a premature fatty degeneration of the uterine muscle such as normally begins after labor (for it will be remembered that while the posterior uterine wall contracted normally, the anterior remained soft and flabby). If this be the case I believe the irregular contractions are well accounted for. Another question for debate now comes prominently forward; that is, What relation did the administration of ergot bear to the hemorrhage? I claim, none, for the following reasons: 1. The small dose given. 2. The os was fully dilated, the head low down, and no obstruction present. 3. The first signs of hemorrhage with symptoms of collapse appeared over two hours after the exhibition of a single dose of ergot. (In a paper written by Hemmeter, quoting from an article written by Schatz and contributed to the Third German Gynecological Congress at Freiburg, the following is given: The action of secale begins fifteen minutes after its administration by mouth, and is greatest in thirty minutes; the effects of a single dose last for one hour only.) 4. The fact that the writer, in a large hospital experience, has in nearly every case given ergot by mouth at or toward the end of the second stage of labor, and has never seen a bad result from its use, certainly never a case of accidental hemorrhage. 5. Its almost constant use in abortions, miscar-

riages, post-partum bleeding, and by some in cases of placenta previa and premature detachment of the placenta, with seeming good result. I mention the latter facts for the reason that a prominent obstetrician speaks in this wise of ergot, and his views are upheld by men of no mean worth, viz.: "As long as the uterus contains anything, be it child, placenta, membranes, clots, never administer ergot." If this statement be followed out to the letter, ergot in obstetrics would be permanently retired. Have we any better remedy to regulate the pains of labor than ergot? I think not. Possibly large doses of quinine; but this remedy does not increase the frequency of pains as much as it increases their vigor. Do not the products of uterine involution, together with shreds of decidua, blood, constantly collect in the uterus, and are not they being constantly discharged in spite of an almost universal administration of ergot? And how often or how many, as a result of retention of these products of regeneration and degeneration, die from hemorrhage or sepsis? Very few, if any at all.

In closing I wish to commend in the highest terms Dührssen's method of tamponade, which has not been as thoroughly introduced in this country as it deserves to be. Although it goes under the name of Dührssen's method yet, it was introduced by Leroux in 1763. He used for this purpose ordinary fabric, and as a sequence his results were so bad—for nearly all cases became septic—that it was dropped and forgotten. Reintroduced in 1887 by Dührssen—and not, as stated by Garrigues, by Fritsch, who used it solely in gynecology—it bids fair to become a method which will prove a sheet anchor in cases of puerperal hemorrhages. It is claimed that his method acts in two ways: (1) as a styptic; (2) as a means of causing powerful contractions. As is usual with new methods, there was powerful and decided opposition to its introduction, it being claimed that: 1. Atony of the uterus necessitating tamponade is extremely rare in the hands of an expert. 2. The method is irrational and unscientific, because it hinders uterine contraction. 3. It is difficult and dangerous for the ordinary physician to use. I have carried the gauze in my bag now since 1887 and am thankful to have used it only twice—once in a case of septicemia with flooding ante partum in a premature delivery; after labor I tamponed the entire utero-vaginal tract, with the happiest results, the gauze acting not only as a powerful antiseptic, but also as a

decided styptic. Its method of application is easy. There is no contra-indication to its use, so harmless and of such great service is it, even though peri-uterine inflammation be present. So far as I could read in the literature of the subject, Audry reports the only bad result, where in a case of placenta previa, after tamponade with iodoform gauze, intoxication symptoms occurred. It must further be remembered that the entire uterus and at least the upper vaginal tract must be tamponed, for Gräfe reports a case in which he only tamponed the uterus: in ten minutes severe bleeding took place, and on examination the entire tampon was found in the vagina as a result of powerful uterine contraction. The gauze should be twenty-per-cent iodoform gauze, four thicknesses, one hand width broad, and about three metres long. It should remain in place, as a rule, twenty-four hours, in spite of the fact that the patients complain of severe after-pains. If no instruments be present to draw down the uterus or to push up the gauze into the uterus, it can be easily done by pushing the uterus down by an external hand and tamponing with two fingers of the other hand.

In finishing this article I wish to ask whether anything else could have been done to save this life. Were I unfortunate enough to meet with a similar case I should deliver much more rapidly, even at the expense of an extensive tear, carrying with it an increased danger from septic absorption; for I believe I should rather lose a case from sepsis than, in my hands, from hemorrhage. I should not temporize by hot intra-uterines and what-not, but instantly tampon the uterus and vagina, and, if the condition demanded, employ intravenous transfusion, not even trusting to rectal enemata of hot saline solution, for I do not see the least result from their employment and probably lost valuable time in using them. There is a striking similarity between the case reported by Dr. Coe and my own—both primiparæ; in both absence of strong labor pains; the fixity of pain in Coe's case in the lower part of the abdomen, in mine situated in the small of the back; and in both cases signs of internal hemorrhage appearing late and following rather than preceding the external flow.

A SUCCESSFUL CASE OF PORRO-CESAREAN SECTION.

BY

MARY ALMIRA SMITH, M.D.,
Surgeon to the New England Hospital,
Boston.

As cases of Cesarean section are still rather infrequent in this country, and the choice of operation is as yet *sub judice*, it seems right that all cases, together with the attendant circumstances influencing the method of procedure, should be recorded in print.

M. C., age 20 years, American, unmarried, cotton sorter, applied at the hospital on August 6th, 1892, for admission. Patient was not very bright mentally and could give but a meagre history of herself. Had been an orphan since infancy, and knew nothing of the origin of the spinal disease or of the numerous cicatrices on various portions of her body. Menstruation was established at 17 years of age, regular and scanty. Was uncertain as to date of last period, but thought it occurred in November, 1891, and that she felt life in April, 1892.

Examination showed patient to be one hundred and thirty-eight centimetres in height, with a marked scolio-kyphosis involving the lower six dorsal and all the lumbar vertebræ, the sacrum being pushed forward and rotated toward the right side. Abdomen fully distended by the enlarged uterus, the fundus reaching to the ensiform cartilage. The fetal head lay in the left iliac fossa, the back directed forward and the breech beneath the liver. Fetal pulsations were heard a little below and to the left of the umbilicus. Vagina small, of bluish tinge. Cervix short and soft. Pelvic measurements as follows: Anterior superior spina ilii, 21 centimetres; cristæ ilii, 26 centimetres; bitrochanteric, 29 centimetres; conjugata externa, 14 centimetres; conjugata vera, $7\frac{1}{4}$ centimetres; conjugata interna, $5\frac{1}{4}$ centimetres. The size of the pelvis made normal delivery impossible, and, owing to the diseased condition of patient, a Porro-Cesarean section was thought most desirable.

Patient was urged to remain in the hospital, but was unable

to do so, though promising to return in two days. Labor pains set in that same evening, and continued through the night and following day, but were mistaken by the patient for colic pains, and she did not reach the hospital until 5 p.m. August 7th.

We were at once notified and preparations for operation begun. Examination showed that the cervix had disappeared and os was dilated to size of quarter-dollar; membranes bulging, but head not engaged, though the pains were frequent and severe, and patient much exhausted. After as thorough disinfection as was compatible with the exigency of the circumstances, etherization was begun, and the operation proceeded with at 7:15 p.m. Incision in median line from five centimetres above umbilicus to symphysis pubis. While my assistant held the abdominal walls firmly pressed against the sides of the presenting uterus, an incision was rapidly made in the anterior wall of that organ from the fundus downward about two-thirds of its length. As the placenta was situated posteriorly, there was but little hemorrhage, and the child, being seized by the breech, was quickly extracted, crying lustily. While the cord was being cut my assistant expressed the now rapidly contracting uterus through the abdominal incision, at the same time pressing together the edges of the wound, thus preventing the escape of any fluid into the peritoneal cavity. No attempt was made to remove the placenta, but a Tait clamp was quickly passed around the cervix and the uterine body and adnexa cut away. The stump was now fixed in the lower angle of the wound, and the peritoneum sewed tightly around it beneath the clamp. My assistant in the meantime secured the peritoneal edges in the upper part of the incision by a continuous catgut suture. The abdominal walls were now brought together by braided silk sutures. The stump was trimmed, dressed with equal parts of iodoform and boracic acid, and left exposed to the air.

The abdominal wound was dressed with iodoform gauze, plaster, sterilized cotton, and a many-tailed flannel bandage. The patient was removed from the table just forty minutes from the beginning of etherization. There was but little shock or nausea, but patient complained bitterly of the discomfort caused by lying on the spinal hump. To relieve this a Goodwin invalid bed was procured and patient suspended upon the canvas stretcher of same.

The convalescence was uneventful. The timely application

of belladonna plaster and a firm bandage to the breasts prevented any trouble with the milk. The wound healed by first intention, with the exception of one small stitch abscess near the umbilicus. The clamp was removed on the twelfth day, and the stump promptly healed by granulation. Patient sat up on the fifteenth day, and was walking about after three weeks. She was allowed to remain in the hospital for a little time in order to build up her general health, and upon leaving us returned at once to her work.

The child was wetnursed by another patient in the hospital, and though small (weighed two and one-third kilogrammes) appeared healthy, and was discharged well.

IN MEMORIAM.

A. REEVES JACKSON, A.M., M.D.

Born June 17th, 1827. Died November 16th, 1892.

A VETERAN has dropped from the ranks of the advanced column of the old guards. A. Reeves Jackson is dead. This sad announcement of our bereavement will find a responsive wail in distant parts of many lands, for this man was known and popular to a great extent the world over—known by his writings and his personality. Possessed of independence, and even aggressiveness, born of knowledge, his sayings, though simple and plain in language, were always decisive and by men quoted.

Reeves Jackson was born in Philadelphia June 17th, 1827. He graduated from the Central High School in 1846, and from the Medical Department of the University of Pennsylvania in 1848. He first began to practise medicine in Stroudsburg, Pa., and remained there until he entered the army in 1862. In 1870 he removed to Chicago, and in 1871 incorporated the Women's Hospital of the State of Illinois. With the exception of the time spent in travelling abroad, he continued in the active practice of his profession to the time of his last illness. He was twice married: first in 1856 to Harriet Hollinshead, of Stroudsburg, Pa., and in 1871 to Julia Newell, of Janesville, Wis. His wife and two daughters survive. The cause of his death was apoplexy, probably due to thrombosis of the left middle cere-

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AND
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JANUARY, 1893.



A. REEVES JACKSON, A.M., M.D.



bral artery. There was no autopsy. From the time of his residence in Chicago he limited himself to the practice of gynecology.

As a physician and teacher it may be said of Dr. Jackson that he was hardly to be excelled in diagnosis, equalled by few as an operator, but most strikingly pre-eminent as an instructor. It is now a source of pleasure to the writer to recall him in that capacity. In a quiet, collected, conversational manner, without oratorical display, without quotation, but earnestly and convincingly, he held his hearers; every sentence stating a fact to be retained, every simple gesture emphasizing that fact—in fine, the words of a man who knew the imparting of his digested knowledge for the benefit of those around him: unaffected but real eloquence. He was always clean of speech and never given to vulgarity, and in that respect was a splendid example to the student. The Chicago Gynecological Society will long remember a certain banquet, when the after-dinner speeches flavored somewhat of levity, how, gently, kindly, and good-naturedly, he brought all back to dignity and nicer words, yet all without offence.

And his humor—how difficult to do it justice, immortalized as it is as that of the "Doctor" in "The Innocents Abroad." As Prof. Quine, who knew him so well, says: "It was always refined in expression and without the sting of personal application, and it was never led up to by labored preparation, but was unexpected and spontaneous as the laugh of a child; his manner of speech, or contrast between manner and speech, being often quite as amusing as the speech itself. He was fond of fun, but not of coarseness; of jest, but not of vulgarity; of repartee, but not of biting personality."

With a reputation national and international, he was nevertheless always modest in his demeanor and appearance. In any assemblage, though his figure and bearing might not at once attract attention, his first words were certain to bring out the strong intellectual lines of his features, which stamped him as a man among men. It was characteristic of him that though he had an established practice in Pennsylvania for fourteen years after his graduation in 1848, he answered promptly at the call of his country, and was eventually appointed one of the medical directors of the Army of Virginia.

A glance at the positions he filled during his lifetime not

only brings out the fact that he was never thought of to occupy subordinate positions, but also shows the esteem in which he was held by his associates in his chosen profession. For several years he was surgeon and chief of the Women's Hospital of the State of Illinois. In 1872 he was lecturer on diseases of women in Rush Medical College. In 1882 he was one of the founders of the College of Physicians and Surgeons of Chicago, of which institution he was president and professor of gynecology to the time of his death. In 1889 Dr. Jackson was elected president of the Association of Acting Assistant Surgeons of the United States Army, another position which he also held at the time of his death. In 1891 he was elected president of the American Gynecological Society. He was a member of the American Medical Association, American Academy of Medicine, Chicago Medical Society, Chicago Gynecological Society, British Gynecological Society, an honorary member of the Detroit Gynecological Society, and a corresponding member of the Boston Gynecological Society.

His writings are so numerous that only a mere mention can here be made. He wrote no large books, for he could only write original words; and originality was the characteristic of all his work. He contributed constantly to current literature, and wrote as he spoke—simply, but always elegantly and forcibly. His later writings on medical topics are those of the general who, the war being over, becomes counsellor. His boldness and skill with the surgeon's knife having been great, he gives us the results of his experience with the wisdom and poise of a veteran. His late published views on hysterectomy might well make the ambitious young surgeon pause and consider, even though its conservatism is extreme; while his very last article, entitled "Electricity vs. Surgery in Gynecology: a Charge to the Jury," enthuses us with admiration for the man who, himself a surgeon, could write so wisely and so fairly. His writings on menstruation have been translated into several languages.

Enough has been said *in memoriam* of A. Reeves Jackson in this volume, the pages of which his name has so frequently adorned, or to its readers, who all knew him so well and esteemed him so highly. Eulogy might prolong the praise indefinitely, his travels in distant lands might be commented on, and the regard in which he was held by foreign masters might

be displayed ; but others will detail his life later, and then will be realized how great his loss. Close up the ranks and fill the gap, if we can : throw his mantle over the warrior, and let us say with the old bard :

Sleep well the brave who sink to rest,
By all their country's wishes blest ;
There Honor comes, a pilgrim gray,
To bless the turf that wraps their clay.

F. HENROTIN.

353 LA SALLE AVENUE, CHICAGO, December 15th, 1892.

CORRESPONDENCE.

DR. BYFORD'S RECORD IN ABDOMINAL HYSTERECTOMY.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—In an article in the November number of your respected JOURNAL, written by Dr. Joseph Price, I find a misquotation of my statistics of abdominal hysterectomy. I am put down in the statistical table for four abdominal hysterectomies with ventral fixation without a death, and seventeen with vaginal fixation with four deaths. Two of these deaths were in incomplete operations with ventral fixation, one with vaginal fixation, and one with the intraperitoneal fixation of the stump. Since I did my second vaginal fixation I have employed vaginal fixation in every case but one, and have a record on my books of thirty-one cases with three deaths (9.68 per cent). One of these cases was an immense sarcoma, universally adherent, and in none of them was there any relation between the method of operation or condition of the stump with the fatal issue.

Very truly yours,

HENRY T. BYFORD.

34 WASHINGTON STREET, CHICAGO, November 20th, 1892.

TRANSACTIONS OF THE GYNECOLOGICAL
SOCIETY OF CHICAGO.

Meeting of April 15th, 1892.

The President, DR. J. SUYDAM KNOX, in the Chair.

DR. FRED BYRON ROBINSON presented some remarks on

THE SURGERY OF INTESTINAL ANASTOMOSIS.

It occasionally occurs that in volvulus of the sigmoid the operator cannot untwist the volvulus, or, if he does untwist it, the volvulus will immediately spring back again. Such a case occurred with Mr. Treves, a well-known intestinal surgeon. Mr. Treves could not untwist the volvulus at the operation nor at the autopsy without tearing the gut. Now, I consider it not necessary to untwist a volvulus which immediately recoils into the position of a tight volvulus. The cause of the recoil is irregular muscular activity of the gut wall, and as soon as the fecal current is removed from the proximal side of the volvulus it will gradually untwist, or at least become loose enough to allow venous circulation. The cause which keeps up the volvulus is the irritation of the periphery of the nerves at the seat of obstruction. Irritation at the seat of occlusion induces irregular bowel action, exalted peristalsis, and secretions. The method to pursue in an irreducible volvulus is to let the volvulus alone, and anastomose the gut above the volvulus to the gut below the volvulus with segmented rubber plates. If the fecal current is removed from a portion of gut, or the piece of bowel is physiologically excluded from activity in the digestive tract, it will quickly atrophy. For its very activity is what induces blood to come to it. Had Mr. Treves used anastomotic plates his patient might yet be alive. A resection of a volvulus of the sigmoid is generally unnecessary and fatal. Gangrene is the only cause for resection.

I began intestinal work in 1887. I first used Senn's plate; the dog recovered, but the bimuscular fistula narrowed down very much in a short time; also, the decalcified bone plate, when put in the upper end of the digestive tract, absorbed too rapidly. The plate requires about two weeks to properly prepare. These disadvantages induced me to search for another kind of plate. One day, on going by a butcher shop, I noticed the scapula of a heifer, which does not calcify for some three years. It occurred to me that this *uncalcified* bone was what I wanted, so I

commenced to use the heifer's scapula for plates; but I found they absorbed too rapidly, and I abandoned them. Stamm, of Fremont, Ohio, also introduced the cartilage plate independently, and has had a successful case in a boy. But my dogs died from fecal fistula caused by too rapid absorption of the cartilage plate when the operation was done on the upper part of the digestive canal. Then I tried top leather, sole leather, belt leather, etc., on a number of dogs. But when I killed the dogs these unabsorbable plates were in just the same position that I put them. In one dog the sole-leather plates remained in exact position for forty-nine days. Afterward I employed shaved green hide, which was nearly always successful. Rawhide plates have proved reliable and safe aids in performing anastomosis. The rawhide plates can be made by shaving the hair from an oxhide. Cut the plate two and a half to three inches long (for a man); cut a small hole out of the centre for immediate fecal circulation. With an awl bore two holes on each side of the plate and one at each end. Thread six needles on three threads, and then thread the plates. I worked many months devising a plate which would hold intact as long as I desired and then fall to pieces and pass per rectum. Finally I found, by combining rubber and catgut, a plate could be made to remain as long as desired in any part of the digestive tract. The segmented rubber plate is made by taking two pieces of rubber bands, three inches long, three-quarters of an inch wide, and about one-eighth of an inch thick. A ring of sheepskin (chamois) is made by twisting several strands together. The ring should be about two inches in diameter, and should be sewed on to the rubber plate with four catgut sutures. The plate should be armed with six sutures, and six needles fastened to the sheepskin ring. The six sutures pass up through apertures in the rubber plate. This segmented rubber plate can be so made as to remain intact as long as desired, and so adjusted as to fit any part of the digestive tract.

The first thing I do for the relief of intestinal obstruction is to give the patient an injection of water per rectum; that will relieve pressure by emptying the colon. It is absolutely unjustifiable to attempt to drive the water beyond the ileo-cecal valve. I have torn the peritoneal covering of the gut, or the gut itself, time after time in attempting it. The next thing to do is to wash out the stomach. If relief does not come air should be pumped through the rectum, and air can be safely pumped beyond the ileo-cecal valve. In one case, in counsel, pumping air into the rectum relieved a man of an obstruction following an operation for hernia. But injecting air or water per rectum, or lavage of the stomach, obscures symptoms, if it does not relieve. If opium is added to this, the main symptoms may be masked. There is a dispute between the physician and surgeon about the use of opium and cathartics. It is all well enough for a surgeon to give salts after laparotomy, when he knows the gut has no

hole in it. But in ordinary intestinal obstruction, where there may be a bowel perforation, cathartics would injure; and no doubt the quiet produced by opium has allowed many a gut hole to heal over.

The diagnosis of intestinal obstruction is most difficult. Nearly always the pain is referred to the abdominal brain (solar plexus), no matter where the obstruction is situated. Introducing the hand into the rectum is bad practice. The rectal tube is not reliable. Often no diagnosis can be made before cutting into the abdomen. If the man goes on day after day without a passage something must be done, and the way to operate is to go down into the abdominal cavity in the median line of the belly, and then decide what operation to do. After entering the abdomen the first thing to do is to find the cecum. You may hunt around for an hour to find the middle of the ileum or the jejunum, but after you have found the cecum you can go in every direction. Now suppose you have found the cecum; if you want to kill the patient easily, just eviscerate him once or twice; you can almost kill him in a few minutes by pulling the intestines, because that drags on the solar plexus. I have done that under chloroform three times on one dog. On lifting out the viscera he would stop breathing. I have found that pulling on the viscera is a terrible shock, because it causes trauma to the peritoneum and belly brain.

Discard Luecke's idea of seizing the first-appearing intestinal coil, for that may be very high up and it would cut off too many feet of assimilating gut. In anastomosing be sure to make the bimucons fistula long enough, or it will close to the patient's detriment. Whatever operation is to be done on a man's intestines, it should be first mastered by experimentation on animals. This is mere justice to man.

DR. H. P. MERRIMAN.—As I understand it, these plates are introduced into the inside of the intestine, but I cannot see how you can tie them in such a way as to approximate them closely enough to get the results we wish to accomplish.

DR. DE LASKIE MILLER.—I have nothing to say about intestinal surgery, but the doctor made a remark about atrophy of the organs when not in use, which brings to my mind vividly a case coming under my care in 1859, when I was in attendance upon the first hospital ever organized in this city. In my ward was a man, about 40 years old, who had malignant disease of the pylorus. At the post-mortem we found the small intestine was not larger than my middle finger, and bloodless. The larger intestine was atrophied to an extreme degree and had very much the appearance of a tapeworm. The remarkable changes in size and appearance of the intestines in this case were undoubtedly caused by arrest of function.

DR. FRANKLIN H. MARTIN.—I have had a little experience with intestinal anastomosis in one case. There was nothing re-

markable about it, except the one point, that was demonstrated to me, of ease of operation. The case was one of cancer of the large intestine-at the junction of the ascending and transverse portions. I was called to assist a physician on the north side of the city, a diagnosis having been made of intestinal obstruction. I was of course prepared with Senn's plates. The cancer or tumor had completely obstructed the bowel. The upper portion of the intestine was enormously distended with gas. The lower intestine was very small, and the only way I could distinguish it was by the peculiar intestinal bands. I isolated the bowel at two places, one below and one above the obstruction, by tying with a piece of gauze. The intestine here was opened in two places, above and below the tumor, and thoroughly cleaned with aseptic material. I introduced the plates, approximated them, and tied in the manner described by the essayist, after scarifying. As I had never performed the operation before, I was really delighted with the ease with which it was accomplished.

DR. FRED BYRON ROBINSON.—The difficulty of intestinal surgery is that we are working on an organ that is going all the time. It is like taking a watch to the jeweller and having him fix it while it is going. The mucous membrane never stops secreting. To illustrate the difficulty of intestinal operations: A man came to me from Pennsylvania two weeks ago for instruction. He had done twenty-nine consecutive successful laparatomies. He did intestinal operations on eight dogs and five of them died, yet he was a most careful surgeon; but I would see his needle prick the mucous membrane unconsciously. The dogs died of fecal fistula. A man came from Cleveland who operated on eight dogs and six of them lived, but this man had done work of this kind before; experience and acquired skill aided him in saving the dogs. In doing this operation you must be careful not to prick the mucous membrane, or fecal fistula will follow.

DR. W. W. JAGGARD read a paper entitled

NOTE ON ONE OF THE CONDITIONS OF THE USE OF ELECTRICITY
IN THE TREATMENT OF UTERINE FIBROIDS.¹

DR. WETHERLA.—I examined the lady in the presence of Dr. Jaggard, and could readily make out a fibroid. As to the cause of the sepsis I have no theories to offer. Within the last three or four years I have made a number of applications of electricity, and use nothing but platinum instruments—those you can heat over a Bunsen burner. Still I have had two cases of rise of temperature that I suppose was due to sepsis of some kind, but I do not know where it came from. The instrument which I used stands, when not in use, in a five-per-cent solution of carbolic

¹ See original article, p. 43.

acid, after having been thoroughly cleansed. Before making an application I always determine the poles by means of a solution of iodide of potash, so I know just what I am using. Twice I used the negative pole when I wanted the positive pole, and the patient came near bleeding to death on the table, and I had to tampon the uterus.

DR. H. P. MERRIMAN.—This lady had been a patient of mine for about twelve years. The first time I attended her was for a very severe peritonitis, when I thought she would die; but she fortunately recovered from that, though I always felt as if there had been some adhesions produced at that time, because she suffered more or less at that time from what we might call peritoneal colic when she overexerted herself or when she took cold. I regarded her as a tender subject. Some four years ago she had another attack of peritonitis which was quite severe, and about that time I first recognized the tumor. Dr. Charles Gilman Smith saw her with me in consultation, and, after making out the fibroid tumor, we thought there was no need of her knowing anything about it. I find when a woman is told such a thing it is always a great distress to her, and if we simply gave her directions for the care of herself she was better off than if she knew she had a fibroid tumor. Consequently she did not become aware of it until a year ago last fall. While East she fell into the hands of a physician there, who, after making several examinations, told her that she had a growth of the uterus. She told me this on her return, and from that time her life was a torment because of the thought of what was within her and what might happen. She suffered at times very severely, and when, last June, I was going to leave the city, I recommended Dr. Jaggard to her, and the family were very much gratified with his care.

I was present at the post-mortem, and in addition to the facts that Dr. Jaggard has stated, I wish to add that the omentum was unusual in covering the whole intestines, and so adherent at the very lowest portion in the neighborhood of the uterus that, after a number of efforts, Dr. Jaggard was unable to entirely separate it by his fingers, and used scissors before he could expose the intestines. On uncovering them there was a great deal of lymph, in flakes scattered all about, and evidence of general acute inflammation of the intestines, which were very much distended with gas. As he passed his fingers down into the pelvis he found on the right side this tumor embedded in adhesions. He could not get it out until he had separated them, and it was while doing this for the first time that fluid made its appearance. I thought the pressure by the fingers produced rupture of the sac. I feel very confident that there was no rupture of it until this time. On the left side there was a pyosalpinx. I could not see any reason for the peritonitis being produced by

the use of electricity, and yet I do not know; I could not decide as to what might have brought it on. She ate an ordinary dinner, as she was in the habit of doing, that evening. Whether or not something she ate was the cause I cannot say. My own statement to the family was that she had been on the edge of a crater for a long time, and that anything might be sufficient to bring on the eruption of inflammation—a too hurried meal, too much fatigue, too much exertion, or even a jar like a misstep in walking.

DR. FRANKLIN H. MARTIN.—I am very much interested in this case, and I have not the slightest doubt but that the patient received the best treatment, from an electrical point, to be had. There is one thing that I always try to remember about these cases, and that is that they are liable to have pus sacs or cysts as a complication. I also remember that electricity, if administered as a shock, will produce powerful muscular contractions and may cause a rupture of one of these sacs. So in all cases, after making the examination, where there is suspicion of pyosalpinx or cysts, or pus in the pelvis, a gradual rheostat should be used. By doing this one may increase the current from its minimum to its maximum without producing the slightest vibration; and all the contractions which occur are tonic, not clonic as would be the case with a vibrating current. It is absolutely impossible for electricity to cause sepsis, because there is no more powerful antiseptic in the world, as has been proven by the demonstrations of Apostoli. I have never had a death from the use of electricity, and I should not consider the result reported to-night by Dr. Jaggard as due to that cause.

I would say that I have had a number of cases where symptoms of peritonitis have occurred, but which I have always considered as cases of violent metritis, as they have invariably ended in resolution.

The doctor makes the point I endeavored to make: that if the surgeon is cleanly in his methods, from electricity itself there is nothing to fear. The danger arises, if at all, from dirty instruments.

DR. HENRY PARKER NEWMAN.—I think a wrong impression might easily be conveyed by what Dr. Martin has said in regard to septic infection by an electric apparatus, when he claims it is impossible. I would say that with this simple instrument a woman could undoubtedly be infected. This rubber tubing or slide may carry infectious germs. And, in the same manner as the uterine sound, the platinum electrode may convey septic material from the external genitals prior to the turning-on of the current.

DR. SAMUEL L. WEBER read a paper on

A PROMPT AND RADICAL CURE OF MAMMARY ABSCESS BY A NEW METHOD OF AFTER-TREATMENT.¹

DR. E. W. SAWYER.—I would like to ask if this treatment is to be limited to an inflammation of a suppurative character which involves the entire breast.

DR. WEBER.—No; it applies to any abscess of the breast, small or large.

DR. SAWYER.—Do I understand that you make a circumscribed incision of the entire gland?

DR. WEBER.—The incisions should always be radial. You should make as many of these incisions as are necessary to expose the fascia of the breast; very often you will need to make but one incision, in many cases two, but if the whole breast is radiated with tracts of pus six or seven radial incisions will be necessary.

DR. SAWYER.—I may have been more fortunate than most practitioners, but I have met with very few abscesses of the breast other than those of a circumscribed character. I do not hesitate, when I detect pus in a section of the breast, to evacuate it, and I have never seen pus invade the entire gland.

DR. E. J. DOERING.—I would like to bear testimony to this method of treating abscesses by making thorough incisions and using the spoon to scrape out all the diseased tissue. I have found, by using the drainage tube afterward and moist dressings, the abscess will generally heal inside of ten days. This method has given me excellent results, but I will try the compression method in my next case.

DR. HENRY PARKER NEWMAN.—I have a single case to report after the method advocated by Dr. Weber, in which there were two large mammary abscesses, and where union took place quite promptly, I think somewhat more promptly than by the usual method I had heretofore used. I think there is an advantage in doing away with the drainage tube; at the same time I could imagine a case, where there was deep burrowing of pus and infiltration underneath the gland, in which I might not have full confidence in this method; however, my experience has been limited.

DR. WILLIAM E. CLARKE.—I am very much interested in this question, because it was a favorite plan with me to make very free incisions. After removing the necrosed tissue the drainage tube is not necessary, provided you get the parts in position; by pressure they will unite by first intention. But there are certain dangers attending these free incisions.

DR. HENRY T. BYFORD.—I would like to say that this whole subject is as simple as eating pie. The doctor scrapes out all the tissue until he comes to healthy connective tissue; puts on some absorbent material to drain off the bloody oozing; then, having a

¹ See original article, p. 58.

clean, almost dry cavity, he draws it together and secures immediate union of surfaces. You can do that in any other part of the body; I have done it in the pelvic connective tissue.

DR. DUDLEY.—About ten years ago I published an operation for the treatment of fistula in ano by the method which Dr. Weber employs in the breast—that is, tissues were divided in the ordinary way, the pyogenic membrane was dissected out, and the wound closed by suture. Good results followed in some cases, in others the fistula reformed. This principle of operation, therefore, as applied to fistula in ano, is only partially successful. With the breasts it may be different, because there the ceaseless activity of the sphincter muscle does not enter as a disturbing factor.

Meeting of May 20th, 1892.

The President, DR. J. SUYDAM KNOX, in the Chair.

Discussion of DR. HENROTIN's paper on

HYSTERECTOMY FOR PELVIC SUPPURATION.¹

DR. FRANKLIN H. MARTIN.—I think the Society owes the essayist a vote of thanks for this paper. The grounds taken should certainly bring out a good discussion. I have had no experience in this operation, but I have had experience with vaginal hysterectomy for other classes of cases, and the point that impressed me particularly was the difficulty to be met with and surmounted in the operation itself. With matted intestines, omentum, and abscesses, how is it possible to remove the uterus without necessarily disturbing these other organs? I can imagine how the uterus might be enucleated in the broad ligament. Is it the idea of this operation to enucleate the uterus from the peritoneum on all sides and not open the peritoneum? Can the uterus be enucleated from the peritoneum without opening the cul-de-sac behind? Where do we get the line of demarcation between the peritoneum and the uterus above? If you go above the uterus itself you get into the abdominal cavity, and you have the same difficulty as if you did laparotomy. In other words, is the uterus completely enucleated from the peritoneum without opening the peritoneal cavity, and the abscess drained from without? If that is not so I cannot understand how, working through the vagina, the abscess can be removed with the same degree of facility as it could be from the peritoneal opening. Of course the rule in surgery is to remove pus wherever found; that rule should be modified, however, by another, that the traumatism of any operation should be considered. The question here seems to be between the pus and the traumatism. If the pus can be re-

¹ See p. 448, October, 1892.

moved in the majority of cases by this operation without destroying life, if life is saved in a greater percentage of cases than by peritoneal section, then it seems to be the operation.

DR. FRED BYRON ROBINSON.—Vaginal hysterectomy for pelvic suppuration is a late device which must stand the test of time. So far its statistics and results are insufficient for any claim, and the cases to which vaginal hysterectomy for pelvic suppuration should be applied are entirely unsettled. The limits of the operation are neither differentiated nor defined. If vaginal hysterectomy for pelvic suppuration is not very limited it will get into as bad repute as vaginal hysterectomy for metritis. Vaginal hysterectomy for metritis has been abused, and vaginal hysterectomy for pelvic suppuration will be still more abused if its indications are not distinctly defined. The author of the paper seems to limit pelvic suppurations to the Fallopian tubes, and for such cases vaginal hysterectomy is applicable. There is no doubt that the main infection which causes pelvic suppuration goes out through the tubes. But any one who follows carefully autopsies on women knows that the veins can give rise to pelvic suppuration. If pelvic suppuration, due to the veins, be evacuated through the vaginal wall, it is nearly always cured and does not recur. I know of scarcely any fatal case where pus, due to venous infection, was evacuated per vaginam. In such a case the woman is left with generative functions, and vaginal hysterectomy would be nothing less than criminal.

The lymph channels often carry sufficient infection into the pelvis to cause suppuration. If the pus is evacuated through the vagina it will cure the case and it seldom ever recurs. Then in metrolymphangitis accompanied with suppuration vaginal hysterectomy is not at all applicable.

Again, the pelvis may be infected through the intestines or vermiform appendix. I think few men would even wish to cure pelvic suppuration due to intestinal infection by vaginal hysterectomy. Pelvic suppuration may also arise from infection through the bladder or vagina.

Finally, we have suppuration in the pelvis due to infection spreading through the Fallopian tubes. For a limited few of such cases vaginal hysterectomy is applicable. Tubal abscesses are not always easy of cure by draining through the vaginal wall, because the very sources of the mischief (endometritis and endosalpingitis) are difficult to remove by drainage.

The next question arising is, whether it would not be better to remove such suppurating tubes by abdominal section. The mortality for the removal of the uterine appendages through the abdomen (three per cent) is less than that for vaginal hysterectomy (six per cent). But Dr. Henrotin claims that often one cannot separate the intestinal adhesions without fatal dangers from numerous fecal fistulae if done by abdominal section.

Dr. Henrotin claims, curiously, that when such desperate intestinal adhesions exist as to prevent abdominal section, vaginal hysterectomy can be done with less danger. Now, it must be remembered that with pelvic suppuration and intestinal adhesions the uterus can scarcely ever be brought down with a volsella; hence a man must do the hysterectomy high in the pelvis, on a uterus almost totally surrounded by adherent coils of intestines. Besides this, Dr. Henrotin advises the clamp instead of the ligature. It is very evident to any operator that the clamp is liable to cause from one to half a dozen fistulæ in a few days. The proposition that the intestinal coils are always adherent to the uterine appendages is not true. I have performed autopsies myself where the bowel loops were densely and solidly adherent to the fundus of the uterus. I recall one case where the cecum and the small intestine were so densely adherent to the fundus that one could pull pounds on the uterus; and also in that very case, with good light and room to work in, a physician, who tore away the gut from the fundus uteri with deft fingers, made two or three holes in the gut. I have seen skilled operators kill women by making holes in the bowel in removing suppurating tubes by abdominal section, but I am inclined to believe that in these same cases more fecal fistulæ would occur in vaginal hysterectomy. I believe at present the safest way to act with those cases is to open the abdomen first and decide whether the suppurating tube can be removed. If it cannot, then look where the vagina can be safely punctured and close the abdomen. The best way to go through the vagina is with a Paquelin. Vaginal drainage is quite safe and reasonable. Landau, of Berlin, reports some two hundred vaginal operations for pelvic abscess, etc., with but *two deaths*. Dr. Henrotin intimates that if the uterus is removed by vagina a source of infection is removed. I suppose he means that endometritis will continue to infect the pelvis. I would note that in the less mortal operation of removing the tube through the abdomen the blood supply is cut off from the uterus, and it will shrink and the endometrium will atrophy. If the ovarian artery is tied the endometrium will not be, after, active enough to support pathogenic germs. It will go through senile atrophy rapidly. So that removing the tube (and cutting off the artery) is as efficient as removing the uterus. The best and most skilful operators can only save about ninety-four women in one hundred in vaginal hysterectomy, where ninety-seven are saved in abdominal section for removal of uterine appendages. If a fecal fistula is made in hysterectomy it may be impossible to close it. Again, Dr. Henrotin has given us no standard or rule by which we can know when to do hysterectomy for pelvic suppuration, or when abdominal section. But we are generally justified in eradicating pus through the vaginal wall when it is found in the pelvis. Vaginal hysterectomy

amidst flowing pus and wide infection is accompanied by high risk, while simple evacuation is quite safe. Dr. Henrotin announces, as is well known, that this operation of vaginal hysterectomy for pelvic suppuration comes from Péan and Ségond. Those who have visited Europe a few times will be fully aware that Péan is charged by the profession with doing more hysterectomies than is thought wise by gynecologists in general. We know that Péan will sometimes remove the uterus per vaginam instead of removing the appendages per abdominem. All will not agree with Péan in such a procedure. It surely is more destructive to a woman to remove a large organ like the uterus than it is to remove the appendages. It may be considered that every forward movement is not always a progressive one, and the recognition and laudation of any new operation only breeds undue license for overzealous surgeons. To say that this is *the* operation for the future in pelvic suppuration is to risk much in the saying. Would any of the gynecologists present wish it to be tried on their wives or relatives instead of vaginal drainage?

The main points relative to vaginal hysterectomy for pelvic suppuration at present are :

(a) It is an operation which should be employed in a few picked cases only.

(b) It is a very limited operation in actual practice.

(c) We so far have no standard rules or recognized clinical knowledge to decide *when* and on *what* cases to do vaginal hysterectomy for pelvic suppuration.

(d) A woman's pelvis becomes suppurative by infection carried through (1) tubes, (2) lymphatics, (3) veins, (4) intestines, (5) vagina, (6) bladder. The present operation will be limited mainly to tubal infection and possibly some fistulae.

(e) It may be employed in a few rare cases where, through dense intestinal adhesions, the appendages cannot be removed by abdominal section.

(f) If the uterus be the source of continuous pelvic infection, and ennetting does not cure it, the operation may be resorted to.

DR. WILLIAM E. CLARKE.—I want to emphasize one point in the paper, as to the after-effects of laparotomy and the advantage over it, in that respect, of hysterectomy. I think it a very important point. Of late I have been gathering the history of a list of successful cases that I have known where laparotomy was performed, and it is a history that the operator, in his exultation over so many successful cases, would not care always to have known. If hysterectomy, as the essayist says, can be done so as to lessen mortality, I think the advantages of this method are important. I have been in the habit, in most cases of pelvic cellulitis, of draining through the vagina, and I believe I have had but one death. Dr. Etheridge saw a case with me, two or three years ago, of a lady who had been suffering for years. We

made a free incision and drained through the vagina. I recently heard from the lady, who says she has been in perfect health ever since. I can think now of several cases where I have operated through the vagina, and in the only fatal case I had I think if I had done hysterectomy there would have been a chance for her life, because on the post-mortem examination I found three or four abscess cavities that had not been reached.

DR. J. A. LYONS.—I confess that this morning, when I thought over Dr. Henrotin's proposition for removing the uterus, it seemed to me a little radical; but after listening to his paper I believe he has converted me to his view, and I think the operation will prove successful in the future. There are many cases where I can readily imagine it would be very foolish to do this operation, but in the hands of a careful, experienced operator I believe it will prove to be all the author claims for it. But only in such a case as he has given us the history of do I believe it should be done, and then only by one whose experience in pelvic operations will enable him to produce the least shock possible.

DR. CARL SANDBERG.—As I understand the reader of the paper, there are different reasons why this operation should be preferred to extirpation of the diseased appendages by laparotomy. One reason was that it is difficult to remove diseased appendages, in many cases impossible to remove them entirely, and in others impossible to remove them without causing lesions of the intestines; in other cases it was possible to remove them, but there would be abscess cavities left in the peritoneal cavity which would cause trouble. Another reason was that, even if the appendages were removed entire, there would be left an endometritis that would cause the patient trouble afterward; furthermore, the probability of hernia occurring, and the different pains, etc., that seem to be considered frequent after laparotomy with removal of the appendages. As far as I understood it, these were his principal reasons for preferring hysterectomy. I cannot agree with the essayist that any of these reasons are satisfactory. In the first place, I do not think it is so difficult to remove a pyosalpinx or ovarian abscess. I have had a little experience with these cases, and I have never met a case where it was not possible, with care, to remove every trace of even the largest Fallopian tubes distended with pus and the largest ovarian abscesses. Again, the essayist said there might be so many different abscesses in the pelvis that even the removal of the appendages could do no good. In these cases I do not think that laparotomy is indicated primarily. If we make a diagnosis of diseased appendages and also one or more abscesses around the pelvis, the thing to do is either to make a large incision into the vagina and drain in this way, or to empty the abscess cavities, if they are not easily accessible from the vagina, by aspiration, and then afterward remove the appendages by laparotomy

if necessary. I believe these cases always originate from diseased appendages, either tubes or ovaries; local peritonitis starts up around them—this may be either of a serous, sero-sanguinolent, sero-purulent, or clear purulent character. If we puncture these exudates of the pelvis we will find out the character of the fluid. In some cases it is clear serum, just as clear as water; and if it is withdrawn, without any opening, it may result in the cure of the patient—at least she would consider herself cured, although there may still be felt some enlarged appendages, but they may not cause her much trouble. If there is pus and it is pointing in the vagina, it ought to be opened there. If I had had the case the author cites in my hands I should have made an incision and drained from the vagina, washed it out, and afterward, if necessary, made a laparotomy and removed the appendages or the diseased organ, whatever it might be. That endometritis in itself should be a cause for removing the uterus I do not think many will agree to. An endometritis can be treated after removal of the appendages just as well, and better, in fact, than before.

In regard to all these troubles that are supposed to follow the majority of laparatomies, especially with removal of the appendages, I do not think there is any necessity for hernia occurring after laparotomy if two points are attended to: first, avoid sepsis; second, bring the fascia together. Nor do I believe there is any necessity for all these troubles and pains patients are supposed to suffer from after removal of the appendages. If the diseased organs are removed entire and the uterus given support from the broad ligaments, I do not think there will be any more trouble. I think the cause of much of the suffering after removal of the appendages is from lack of support from the broad ligament, resulting in retroflexion, retroversion, or prolapse of the uterus. I think this is from the form of ligature the operator applies to the pedicle. In some of my earlier cases I ligatured the broad ligament in two places close to the uterus and close to the wall of the pelvis, and ligatured the pedicle between them; this, however, did not give good results, but I have obtained excellent results by pulling up the ovary and tube in one pedicle and applying the Staffordshire knot at the root of the pedicle, tying it tight. This makes the broad ligament tense and supports the uterus. So even in cases where there have been diseased appendages, pyosalpinx, or ovarian abscess, or whatever it has been, for years, and the uterus has been in a reflexed position for years, after removal of the diseased organs and applying the Staffordshire ligature on each side the uterus has retained its normal position without any hysterorrhaphy or additional support.

DR. T. J. WATKINS.—I think Dr. Henrotin's paper is a valuable contribution to gynecological surgery, and great credit is due him for his able essay. The difficulty is to decide in

what cases this operation should be performed. The case which he reports belongs to a class of cases suitable for this operation—that is, suppurating cases in which the sac is discharging into the bowel. The treatment of such cases by laparotomy has proven unsatisfactory. I think it would be well in doubtful cases to open the abdomen, and, if the adhesions are found to be extensive, to close the incision without excessive manipulation and later on do the operation suggested by Dr. Henrotin. It does not seem advisable, however, to do this operation unless the suppuration about the uterus is general or communicates with the rectum.

DR. HENRY PARKER NEWMAN.—Although this is a somewhat radical procedure, I can see that it will be of great advantage in well-selected cases. One of the best points made by the essayist is that it affords a large, dependent, and central cavity for drainage of the suppurating surfaces, since the majority of these abscesses radiate from the uterus through the surrounding connective tissue.

In commending this operation I refer only to those aggravated cases of long standing which have resisted the usual methods of treatment, and the life of the patient is endangered by the continued suppurative process.

In his general discussion of pelvic surgery I do not understand how Dr. Sandberg proposes to obviate the troublesome displacements and adhesions, which so often follow laparatomies, by simply “tying the tubes at their root with the Staffordshire knot.”

The prevention of these after-effects is an extremely important point in laparotomy, for the strictures and adhesions which often result are the cause of discomfort and persistent pain, besides interfering with the functions of the neighboring organs: and if they can be avoided by so simple a procedure as Dr. Sandberg has spoken of, we ought to take advantage of it. The methods of ventro-fixation, fastening the stumps of the excised tubes, or shortening the round ligaments by doubling and suturing within the abdomen, have served me well where I have used them for existing indications.

Attention to these indications by such and kindred methods will, I believe, become more and more general in the technique of future laparatomies.

DR. HENRY T. BYFORD.—Both the paper and the subject merit a thorough discussion. It is an exceptionally interesting paper and I can agree with it in most respects. The meaning of the author has been slightly misunderstood, I think, by the majority of those who have spoken since. The operation is only advocated for a limited number of cases, and is not a substitute for any other operation, except laparotomy where both appendages are diseased and where there is suppuration. To call this the operation of the future and say it shall supersede

laparatomy is all wrong; but there is no doubt that the present relations between these operations, as well as our views upon abdominal section, will all have to be rearranged to a certain extent, and this method will have its place. To say that we should not perform laparatomy because there are bad after-effects is an admission that our technique is not yet perfect and that we have something to learn about abdominal section as well as vaginal section. I do not know whether the doctor maintains that this should be performed for double pyosalpinx in each and every case, instead of laparatomy, or not. I think it will be limited to a few of the worst cases. Many times we can remove pus tubes, situated high up, quite safely by abdominal section, those low down by vaginal section through the cul-de-sac of Douglas, without the additional danger and mutilation of removing the uterus. When adherent low down to the rectum, or having ruptured into the pelvic connective tissue or cul-de-sac of Douglas, we can often readily open and adequately drain the abscesses from below. In some cases I have opened from the vagina or rectum (I have published a successful instance of each) and found the entire pelvic connective tissue converted into a single abscess extending almost entirely around the rectum and up into the so-called uterine ligaments. In one case I punctured a pelvic abscess of the left broad ligament from the rectum, and, going through that abscess cavity, made a free opening into a tubal abscess adherent above and cured the patient of her symptoms. In many cases I have stretched the sphincter ani and dilated the opening of abscesses discharging into the rectum, and I have cured the abscess every time that I have had personal control of the patient. The opening must be made large and must be either dilated two or three times or a self-retaining tube must be put in. But there are certain cases in which the intestines are matted over the pelvis and the abscess perhaps broken into the cellular connective tissue, and an ideal laparatomy is impracticable. In this class the uterus, after the cervix is separated, can be pulled down into the vagina, and, as it gets in the way, a part of it cut off. Pulling the uterus down draws it away from the intestines; and as in but a very small proportion of cases is there adhesion of the intestines to the uterus itself, they can be avoided. But when we can take out the tubes and ovaries perfectly and leave the uterus, it seems to me better than to take out the uterus, which may be healthy or curable, and leave all this suppurating tissue behind it. It will usually heal and contract, but the adhesions will remain, and to say, in this early stage of the operation, that there will be no bad effect from them is a little premature.

DR. DUDLEY.—The question of vaginal hysterectomy for double pyosalpinx requires for its settlement more statistics than are now available. These statistics would have to include not only the immediate results, but, what is more important, the final

results. The question should not be settled on *a priori* reasoning. There is probably a class of cases in which the advantages of hysterectomy would be relatively great—cases in which intestinal and other adhesions and the presence of inflammatory formations render the ordinary operation almost impossible, at least terrible. In such cases the uterus is often quite or nearly free from adhesions, and could therefore be removed per vaginam with less traumatism than would be required in the removal of the appendages by the ordinary laparotomy. Manifestly the operation would be more difficult in virgins. The co-existence of hopeless ovarian disease with pyosalpinx might contra-indicate vaginal hysterectomy on account of the greater difficulty of removing adherent ovaries through the vagina. Moreover, it is not always possible to determine the condition of the ovaries before operation. I am seriously impressed with the importance of this operation. It is not improbable that it will, as the author claims, become the operation of the future, or, more correctly speaking, *an* operation of the future, the only question being on the extent of its indications.

DR. F. HENROTIN, in closing the discussion, said: My friends know that I rather belong to the conservative side in regard to these operations, both laparotomies and hysterectomies, and that is one reason why I hesitated to present this paper. I can see that it opens the door, if generally accepted, to a great deal of bad work. Hysterectomy is a dangerous and serious operation always, and I do not think we want to practise it with the freedom they do in certain parts of the world. But I think, and have tried to so state in this paper, that this is only designed for a certain class of cases.

With regard to Dr. Martin's objection regarding the difficulties of the operation, there is no doubt that it is not an easy operation; at the same time you can usually succeed in doing it in all cases. The physician or surgeon doing this operation of course should always be a man of considerable skill, and he has his landmark before him all the time—that is, the uterus; and he cannot do the damage, even if he has not had much experience in this operation, that he can above in the abdomen; he is not surrounded with vital organs like the intestines, or with the dangers of long-continued contamination of the abdominal cavity, as he is above; but he can work deliberately and carefully, keeping close to the uterus, and he can usually succeed.

In regard to the amount of hemorrhage, experience has proven in this class of cases, with men who have done the operation frequently, that the hemorrhage is usually not excessive. Some men do the operation almost entirely with long retractors and the finger, and are able to enucleate the uterus with very little hemorrhage; the little clamps on each side not being dangerous—as in operation for cancer, where the ends are in among

the free intestines and there is liable to be an ulcerative process perforating the intestine—but they are more or less covered by exudate. This operation is called for in extreme cases where you are as near certain as possible that the case is going to be a bad one for operation by laparotomy, where you know you are going to have trouble. It is not usually called for in abscesses that can be reached through the vagina; yet we have all seen those old suppurative cases where the whole pelvis is one solid mass and you cannot make out anything by external palpation except a solid mass on each side, the patient has suppurated so long that you know the uterus and tubes are good for nothing in the future, and if you take away the tubes you have first to detach the adherent intestines, then get away the appendages. Dr. Sandberg says he can always get away all of the appendages. I have been in the abdomen a few times myself; let a man follow the directions of Tait and make an incision one and a half or two inches long, or even make a long incision, yet the adherent intestine, blood, and pns obscure his view, and how can he be sure the whole tube is taken out? All authorities say it is very difficult. You have to get the tubes out piecemeal the best you can, and you cannot always know what you leave behind.

In doing this operation, although there may be extensive supuration in the pelvis on all sides, still the fundus of the uterus is liable to be but slightly covered with exudate; and once you get your circular incision made and the vagina detached from the sides, you will be surprised to find that the uterus begins to come down when it did not before, being held by the broad ligaments and the infiltration and thickening. However, you are not sure you are going to get into the peritoneal cavity at all, because the uterus may be covered with exudate. It might be difficult in some cases, particularly, as has been said, in virgins with a narrow vagina, but usually you can bring it down and your work is in sight. I have seen the operation done six times. I saw Ségond do it twice, Péan twice, and Jacobs twice. You keep putting your clamp ahead and working with your finger, and it is only in recent cases that you have much hemorrhage; in the old cases there is a condition of sclerosis, of hyperplasia through the tubes and uterus, and they do not bleed much, then you know about where to look for hemorrhage. While there is danger from hemorrhage, it may be surmounted, provided the operator is deliberate and careful; it is not here as in the abdomen, where haste is some object. Some of the gentlemen have said they would not do this operation for pyosalpinx; neither would I in our present condition of operating. It is for a mixed suppuration, where the pyosalpinx has broken into the spaces of the broad ligament, where the suppuration extends through all the tissues, particularly where there is a fistulous opening into the rectum; I will guarantee that

there are two hundred women in this town to-day who are travelling around, weak and thin and out of health, from fistulous openings into the rectum, and I will guarantee that a number of them have had laparotomy performed unsuccessfully. I know that in these days of early interference, of early laparotomies, there will be less call in the future for this class of operations, because the cases of mixed, complex suppuration will be less, and I know that our knowledge will advance in the treatment of endometritis and salpingitis. I have taken hope again lately. I have treated endometritis with chronic pelvic peritonitis for a long time and have not had much faith in anything but time; but now we find, if we are aseptic, we can dilate the uterus and curette, and I have no doubt, in a few cases, succeed thereby in dilating the internal openings of the Fallopian tubes. I think the early treatment of endometritis, by putting the uterus in a perfectly healthy condition, will eventually result in our not having so many cases of salpingitis, because they will be cured early and without danger, provided aseptic conditions are observed all the way through. Often the first focus where the septic material lodges and has a constant supply is the endometrium; and even if you knew how to cure salpingitis, the endometrium would start it up again in a little while, and that is why taking away one ovary and tube leads to trouble afterward, because the endometrium is not cured. One great thing in favor of this operation is that when you cure the suppuration you also cure the pelvic peritonitis, and you do not have a patient cured of abscess who goes about crippled and in pain. First make sure that the uterus, Fallopian tubes, and ovaries will never be able to resume their functional conditions again; then you can cure the suppuration and the patient at the same time. The future will tell as to what this operation will do, of course; but remember that the uterus is still an element of distress, and that when you go up in the abdomen with a bad case and leave a lot of cicatricial tissue you are liable to have trouble later on. I had in my practice three women at the same time who had had their ovaries taken out, and two of them deliberately came and asked to have the uterus taken out; they were suffering about as much as before. I believe the proper place for the conscientious surgeon to begin with this operation is where laparotomy has failed, or there is every reason to believe that it will fail; you cannot get over the evidence of the fifteen cases mentioned where laparotomy done by skilful men has failed and they have been cured by hysterectomy. Although I am very conservative, if the day ever comes when we can diagnose our cases to a certainty; if we can say, Here is a patient with bilateral disease of the Fallopian tubes and ovaries, quite incurable, whether it is suppurating or not, I shall say the proper thing to do is to take away the uterus. I feel certain that after this discussion several of you are

going to take away the uterus in those old pelvic suppurating cases.

FIBROID REMOVED BY ABDOMINAL HYSTERECTOMY.

DR. DUDLEY.—The patient first consulted me eighteen months ago for a fibromyoma reaching nearly half-way to the umbilicus. According to the history which she gave me she had had electrolysis every day for six months, the current varying from fifty to one hundred milampères. Except some slight relief from pain and hemorrhage, the results of electrolysis had been negative. Menorrhagia has never been extreme. The rapid growth of the tumor, increase in pain, extreme pressure symptoms, and failing health were the indications for abdominal hysterectomy, which was done about two weeks ago. The stump was turned down anteriorly into the vagina. The operation lasted about two hours. The unusual length of the operation was due to the unusual difficulty in turning down the stump. The pressure forceps on the stump were removed on the fifth day after the operation. A gauze drain was used. Two points about this case are : 1. The unusually long trial of electrolysis, which failed. 2. The unusual difficulty in turning down the stump.

DR. FRANKLIN H. MARTIN.—The question naturally arises here why electrolysis did not accomplish the usual good effect that is expected in a fibroid. The cause I have pointed out in a recent article, and the same point has been made by others: it is because of the large number of centres of development; instead of being an interstitial fibroid with uniform development, there are in this specimen six or eight separate points of development, and one a large subperitoneal pedunculated tumor. Of course electricity would not be expected to affect this subperitoneal projection, having, as it has, such a small attachment to the body of the uterus. These cases represent probably not more than fifteen per cent of all fibroids. In them electricity will usually fail to reduce the tumor, while it may not fail to check the hemorrhage and relieve the pain if the uterine canal is not deformed.¹

DR. HENRY T. BYFORD.—I would state that I think the usual reason for trouble in inverting the stump in the vagina is in the size of the vaginal incision. If the incision is carried forward under the bladder the stump turns very easily. If it is enlarged laterally a large stump will not turn as easily as if enlarged forward.

DR. FRED BYRON ROBINSON.—I would like to ask Dr. Martin

¹ The case presented is one treated by myself by electricity. Dr. Dudley informed me of this fact after the discussion was closed. I wish to say that I voluntarily abandoned treatment more than three years ago in the case, and urged an operation, because I suspected just what its removal has demonstrated—multiple development—although pedunculation had not at that time occurred.

what is the difference in the effect of electricity on a soft, edematous myoma and a multinodular myoma. He says these constitute fifteen per cent of the class where electricity fails in its ultimate desired result; he must mean the soft, edematous myomata.

DR. MARTIN.—One kind, the first, will get well—I do not know why; it is simply a question of clinical experience. We used electricity formerly on everything that came along; now we are beginning to discriminate.

DR. E. C. DUDLEY, in closing the discussion, said: Relative to Dr. Martin's remarks to the effect that the tumor was not a proper one for electrolysis, it may be said that this is much more easily ascertained now with the tumor before us than it was when Dr. Martin used the electrolysis.

Meeting of June 17th, 1892.

The President, DR. J. SUYDAM KNOX, in the Chair.

DR. W. W. JAGGARD presented

A CASE OF THORACOPAGUS.¹

DR. FRED BYRON ROBINSON.—I know of two cases bearing on this subject. In one the mother during gestation stood by to see a little girl have her ears pierced for earrings, and when the child was born we found in the lobe of each ear a little hole. That came under my personal observation. Another case, which also came under my personal observation, was a woman who, while walking in the country, stepped on a toad, and when her child was born it had warts for toes.

DR. HENRY BANGA.—I also have a case to relate which I think is quite pertinent. About six years ago a lady came to my office stating that she had missed menstruating about two weeks, that she thought she was pregnant, and that she wanted my advice whether she could risk going to a dentist to have her teeth fixed. I told her to go; that I could not see how that could injure the child. When her time was up I was called to deliver her. She was lying in a darkened room, and when the baby was born she said to look and see if the child was all right. I told her of course it was all right, because it was crying lustily; but when I examined the child in the light I saw, to my great surprise, that it had a harelip. Curiously enough, it was a front tooth the mother had had fixed, on the very same side the child had the harelip. I merely state this fact. I will add that during her whole pregnancy this tooth fixing had been a matter of great concern to the woman, and

¹ See original article, p. 89.

that twice before the birth of the child she asked me whether I did not think the child might not be born perfect.

DR. FRANKLIN H. MARTIN.—These things seem to me as mere coincidents. How many times are we asked, when a child is born, if it is all right, and how it is all right almost invariably. If each of us were to relate cases where we have not found these marks when they have been asked for by anxious mothers, I think the weight of evidence would balance the other way.

DR. H. P. NEWMAN.—Another phase of this subject is illustrated by a case, recently seen in practice, of profound maternal shock producing death of the child in utero. A woman near term, stout, healthy, and vigorous, who always enjoyed good health, was riding on a cable car about the first of January last when it was run into and a window smashed behind her, doing her no bodily injury, but producing severe nervous shock. She was then five months pregnant, and previous to that time she had felt life quite vigorously for a number of weeks, but from that hour on she ceased to feel any further movement. Some three months after that she came to my office and asked why she did not get larger. I told her the child for some reason had not developed, that it was dead, and she gave the above as the probable cause. A few days afterward she was delivered of a five months' fetus developed perfectly up to that time, but which had remained in that state, a shrivelled, mummified fetus of five months. I can attribute the death of this child to no other cause than the severe shock the mother received. These cases are not infrequent, and I think are evidence of the very intimate relation existing between the mother and the child in utero.

Dr. Martin's objection is often used, by those who favor the theory of maternal impressions, as an argument in its favor.

DR. W. W. JAGGARD, in closing the discussion, said: There is absolutely no evidence that any emotion on the part of the mother, felt at any time during the pregnancy, has any effect whatever on either the external or internal formation of the child. While there is no evidence in favor of this theory, against it are the number of facts mentioned in the paper, namely, that there is no malformation peculiar to the human race. All malformations present in the human race are observed in the lower animals, and analogous malformations are observed in the vegetable kingdom. It is a remarkable fact, and not a very flattering commentary on the state of scientific thought in American medicine, that the sponsors of the theory of maternal impressions are almost exclusively confined to American authors. The doctrine has absolutely no place in modern scientific medicine. The purpose of this brief note was to bring out a discussion on the genesis of these monsters and on the treatment of labor. I regret that the debate has run into the topic of maternal impressions.

The President has just told me of a very interesting case of

complete absence of the umbilical cord, the placenta being directly continuous with the abdominal walls. A case of this kind, of which the only one recorded is in Ahlfeld's Atlas, ought to be placed on record. This leads me to the general remark that every practitioner runs across interesting specimens which usually receive no accurate description, certainly no permanent one. There is in connection with the Army Medical Museum a department where such specimens will be taken care of and accurately described, and made of permanent value to medical transactions. In case any gentleman does not care to go so far as the Medical Museum, the Chicago Medical College will be glad to take care of these specimens.

DR. D. C. TROTT demonstrated a

MONSTROSITY (HEMITERRATA).

This monster was delivered by me on April 14th, and dissected by Dr. Carl Beck, who will demonstrate the case.

On April 14th, 1892, I was called to Mrs. J. K., *et.* 20, who was suffering from intermittent pains. She had been pregnant seven months; first pregnancy. On vaginal examination the os uteri was found dilated and the membranes protruding almost to the vulva—in fact, on separating the labia the bag of membranes could be seen. Between the pains the right foot could be felt. After rupturing the membranes the two feet and a boggy mass could be felt, the feet being to the right and in front, and the boggy mass behind and to the left. With a few pains, after rupturing the membranes, the fetus began to come down, and complete delivery was effected in about twenty minutes. The feet came first, followed by buttocks and boggy mass together—the buttocks following the feet anteriorly and the boggy mass remaining posteriorly, these passing vulva together; this mass afterward showing itself to be an encephalocele. There was no formed cord, the vessels being separate and were broken spontaneously as delivery was effected. The placenta followed the fetus in a few seconds. On examining the fetus it is found to be doubled on itself, so that the right ear lies on the right hip, the right arm around the waist. If we try to straighten the spinal column we can only partially succeed, and on letting go it resumes its former position—showing that the right side of the body is shortened, and that the bones, ligaments, etc., of the spinal column are so formed as to cause this position.

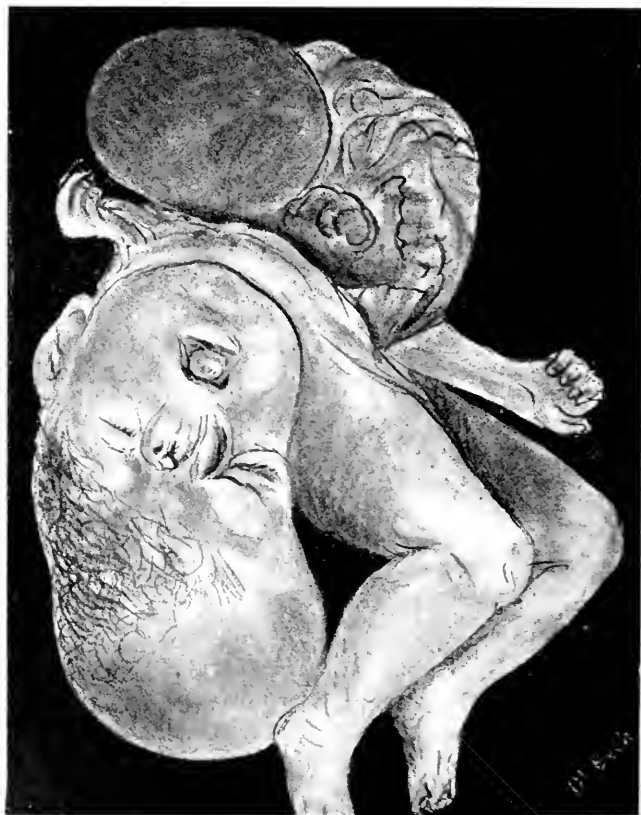
Now to take the parts separately before dissection.

1. *Head*.—On the vertex there is a tumor the size of the head itself, discolored blue and looking like a hematoma. Scalp is covered with light blond hair. There are two small, spindle-shaped processes with hairs attached, one of which has a small cyst at the extremity. (Another process like these is placed at

the left margin of the ventral opening near the position of the umbilicus.) The tumor of the head is soft and the contents communicate with the contents of the skull, the parietal bones being either very soft or not existing at all.

2. *Forehead* and other parts have spots of parchment-like thickening which resemble skin which has endured pressure for a long time.

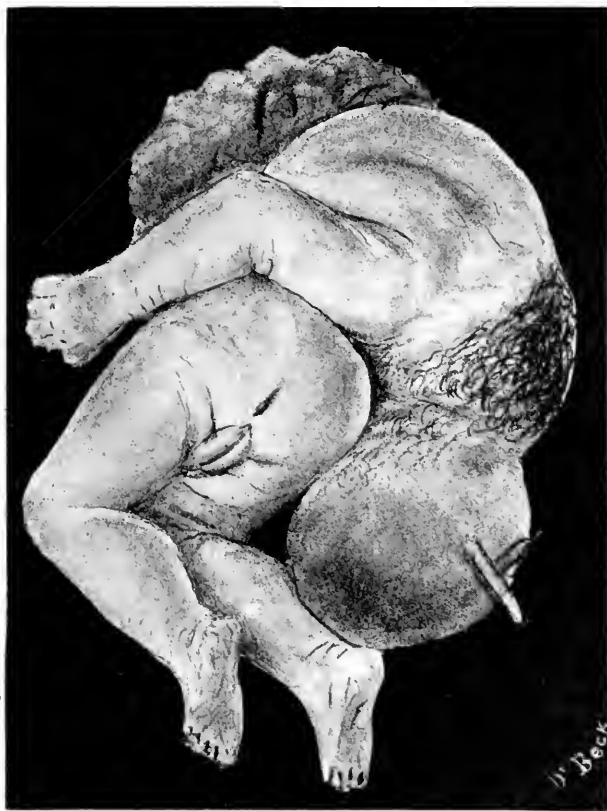
3. *Face*.—*Nose* is above the level of the eyes and appears



Hemiterrata—front view.

like a split snout, each side differing in shape from the other, the left half having a cartilaginous process with a minute opening through which a sound can be passed to the pharynx; and the right side has a broad split a quarter of an inch in length, being about the size of a normal nostril, directed forward. Between the two sides is a shallow, cartilaginous ridge. The *upper lip* is abnormally high, but well formed. The *right eye* has normal lids; the bulbus is formed, but does not show the finer

details of development. The *left eye* is only in outline—that is, two lids joined together, with a small blind pouch at the inner canthus. There is no bulb in the left orbit. The *palate* has a deep ridge. *Tongue* and *pharynx* are normal. The *right ear* is normal. The *left ear* is very abnormal. The concha is only in outline. No meatus, instead of which there is the opening of the second branchial cleft a little in front of the normal position of the meatus; into this a probe can be passed down-



Hemiterrata—rear view.

ward, forward, and inward for about half an inch. The cleft is about one and one-half centimetres long. In front of this cleft there are several small cartilaginous processes, and one behind it which separates it from the concha.

4. *Neck* is short.

5. *Thorax and Abdomen*.—Nearly the whole of the anterior wall of the thorax and abdomen is wanting, the thoracic and abdominal contents being turned out, there being a complete

thoraco-gastro-eventration. The want of continuity in the walls begins about two centimetres below the chin. The *thoracic organs*, heart, lungs, with all appendages, are present, as well as all the constituents of the thoracic walls, but the ribs, muscles, etc., are crowded together. *Diaphragm* is wanting. The *liver*, the largest abdominal organ, is projecting over all the others. There is a point of liver, resembling a small spleen, which passes by a small neck behind the pylorus and then projects forward as a small nodule. *Kidneys* and *intestines* are perfectly developed. *Internal genitals* are completely developed, but the left ovary is small and left tube long and narrow. *External genitals* (female) and anus normal.

6. *Upper Extremity*.—There is a rudiment of a left extremity (upper)—that is, a hand with four fingers, of which one with two phalanges appears to be the thumb and the others the third, fourth, and fifth fingers. The wrist, forearm, elbow, and shoulder girdle appear to be formed by a mass of small, irregular cartilage nodules buried beneath the skin. Apparently in the early folding of the blastoderm the extremity began to be formed, and then that portion forming the thoracic wall (left) folded over and became fused over all the extremity except the hand, or, in other words, the arm sank into the thoracic portion of the blastoderm and remained under the skin and outside of the thoracic wall proper, the hand protruding through the skin.

7. *Lower Extremity* is normal except the feet. On the left foot there is a syndactyl between the second and third toes; on the right foot the great toe is rudimentary, the second toe is riding over the third and the fourth over the fifth, giving the appearance that the fetus has two left feet.

ON DISSECTION.—1. The sac which is an appendix to the head, on being opened by a median incision, is found to communicate with the interior of the skull. The skull is only partially developed, the parietal, frontal, and part of the occipital bones being rudimentary, leaving a large hole in the long capsule through which a pouch of dura mater protrudes containing the larger portion of the brain.

2. The brain (after keeping a week) is nearly entirely a pulpy mass. On upper surface only a few convolutions can be seen. On cutting into the brain the ventricles appear and are not distended. Base of brain normal.

3. *Upper Extremity*.—The hand of the left extremity has only three long fingers and a thumb, but the carpus, forearm, and shoulder girdle are made up of nodules of cartilage united together and to the ribs by ligaments. The ribs of the left side are less developed than the right. Right upper extremity is normal.

To summarize, we find that this monster is not one of the ordinary types which are representatives of the classified forms of the different authors, but is more complicated. We have a mon-

ster *per defectum* of some authors—*i.e.*, one which is not only defective as a whole, but whose individual parts are also defective. In this case there is considerable abnormality, and it would be placed by some under the head of *Hemiterrata*.

The abnormalities, tabulated, are:

1. Defective development of the cerebro-spinal canal, in that the closure of the bony canal is incomplete.

2. Defective development of face—all parts except left eye and ear having a low grade of development.

3. Deficiency in the disappearance of the branchial clefts, as described above.

4. Deficiency in closure of the pleuro-peritoneal cavity. We find the largest possible cleft in the anterior wall of the fetus—*i.e.*, from two centimetres below chin to pubes—and no formed cord, vessels being separate. Genitals having one ovary small and one (left) tube larger than usual, probably due to the bending of the body to the right side.

5. Deficiency of development of left upper extremity.

6. Scoliosis with partial twist of vertical axis of nearly 90°.

This fetus is about seven months, with defects of all groups of organs, and having a greater development of left than of right side.

As regards the cause of this want of development, history gives no defect in family of father or mother. The mother was in the habit of lacing very tightly during the first four months of pregnancy. Evidently there has been some hindrance to the development of the body in a straight line; and whether external pressure could have caused this or not, whatever was the cause acted in preventing the amnion on one side from elongating (that is, the right) in proportion to the left. The amnion of left side growing out of proportion to the right evidently caused the body to become deflected to the right side. The fact that an encephalocele existed would go to prove that the amnion was not contracted at the anterior end of the fetus. We have also evidences of cessation of development which must be apart from a pressure cause. If we look to pressure as the cause of all of these deformities, we must suppose that it acted directly on the amnion of the right side, and indirectly through the circulation and nerve supply of the fetus, causing a cessation of the normal formative processes at different points, or possibly by acting directly on the blood supply of the uterus itself or on the circulation through the placenta.

DR. FRED BYRON ROBINSON.—I have here a specimen of

ILEO-COLIC INTESTINAL ANASTOMOSIS.

The operation was performed by the aid of the segmented rubber plates. The patient was a woman about 40 years of age, and had suffered nearly nine days from bowel obstruction. The

case belonged to Dr. Hollister, of this city. Dr. Hollister had urged the patient to submit to an operation, but she persistently refused. After six days of unsuccessful treatment Dr. Hollister called Dr. Martin in counsel. Both urged strongly for an operation. On the seventh day Dr. H. T. Byford was called in consultation; he advised to delay one day longer before operation. On the ninth day the patient was taken to the Women's Hospital and operated on. Dr. Martin opened the abdomen and searched for the obstruction. Obstruction was found at the ileo-cecal valve. The small gut for about twelve feet above the valve looked dark-red; its wall was much thickened and appeared mottled in color; it showed severe peritonitis. In fact, the peritonitis had proceeded so far that the gut had ileus paralyticus. It showed along its route irregular dilations and contractions. Dr. Martin now asked me to perform ileo-colic anastomosis. I first cut a hole in the colon one and one-half inches in length and introduced my segmented rubber plate. The six sutures, armed with six needles, were passed through the entire gut wall from within outward, about one-third of an inch from the cut edge of the gut. One suture came out at each end of the incision in the colon and two on each side of the colon incision. The incision in the colon was made on its anterior surface, about six inches above the ileo-colic valve. An incision one and one-half inches long, a foot from the ileo-colic valve, was now made in the ileum on its surface most distant from the attachment of the mesentery. A segmented rubber plate was introduced and the six needles passed from within the gut outward through its entire wall. The serous surface over each plate was scarified. The plate in the colon was approximated to the plate in the ileum and the two corresponding lower sutures tied. Then the two corresponding end sutures were tied, and finally the two upper ones. A few over-sutures were then applied, as no omentum could be secured for a graft. The abdominal cavity was washed out and closed. The woman lived some forty hours after the operation, but ileus paralyticus had proceeded so far that the bowel was unable to force even gas out of the rectum. A segment of twelve feet of bowel was paralyzed and never recovered its peristalsis. I think no gas ever passed the rectum after the operation. It was simply a case too late for relief. Time (nine days) had put it beyond the art of surgery. You will notice that the specimen obtained from the autopsy shows that the anastomosis is perfect; it does not leak a drop of water, though there is fluid in the cavity. Coaptation was perfect and healing was fast progressing. No leakage was found around the operated parts. When Drs. Martin and Bacon performed the autopsy they announced that the anastomosis was as perfect as when done. I noticed a feature in this case, on the morning just before operation, that will deceive many men: eight days of bowel obstruction had passed,

but the tympanites was still very slight. Most abdominal surgeons think, until experience teaches them otherwise, that if there is not a good deal of intestinal tympanites there is no need of operating; but that is not true. I have been deceived by non-tympanites in bowel obstruction in dogs many times. Again, one must not be deceived in regard to bowel distention after the abdomen is opened. Some expect to find the distending gases all on the proximal side of the obstruction. This may not be so at all. If the gut is paralyzed fermentation in the bowel will make gas anywhere, and a paretic gut will dilate where the gases are formed. In this case the bowel beyond the obstruction in the sigmoid, *e.g.*, was much distended, and the sigmoid looked as if it had obstruction; but this we knew was not the case. Of course bowel paresis is required for bowel distention beyond the obstruction. But I have witnessed bowel distention many times in dogs on the distal side of the obstruction. Later work in intestinal anastomosis during the past year and a half has more positively than ever convinced me that the plates must be made longer, and the bowel incision for anastomosis in the adult must be made some *three* inches long, for it will subsequently contract. I have proved dozens and dozens of times that the anastomotic aperture will contract in a few months to one-fifth of its original size. I have had them contract from incisions an inch and a half long to a round hole but little larger than a wheat straw. Six weeks often suffice to contract an anastomotic aperture one and one-half inches long to the size of a lead pencil. If all the fecal current goes through the anastomosis it will not contract so quickly. I will again call attention to a positive danger in intestinal anastomosis; it is the invagination of the distal end of the gut subsequent to operation. I had this occur many times in experimental work. It can be prevented by stitching the distal end of the gut to the proximal end, so that it cannot invaginate without drawing the proximal end with it.

CASE OF TUBAL PREGNANCY; DIAGNOSIS AND EXTIRPATION
BEFORE RUPTURE.

DR. HENRY BANGA.—The specimen I wish to show you this evening was taken from a patient with the following history: She is a Russian Jewess, and commenced menstruating in her sixteenth year, always regular, never painful. She is now 24 years old; has been married five and a half years; had a second-month miscarriage five years ago; has never borne any children. She menstruated the last time January 20th, 1892, missed in February, and thought that she was pregnant on account of nausea and vomiting, most marked in the morning. After amenorrhea had lasted seven weeks she began to have slight uterine hemorrhages, sometimes clotted, sometimes fluid, though

never severe. The patient never noticed anything in the discharge to correspond to a decidual membrane. Pains set in soon after the cessation of the menstrual flow, and were of a colicky character, mostly confined to the right side. After the hemorrhages had begun the pains were almost constant, colicky, radiating into the right leg, and independent of any known source of irritation.

The patient tells in this connection that she was examined by one of our leading gynecologists two years ago, who informed her that she had a tumor in her right side, and advised an operation. It was on account of pains that she had consulted the doctor. The bloody discharge continued; she frequently had a feeling of dizziness. On Sunday, May 8th, while yet in bed, she had a fainting spell preceded by severe pains in hypogastric region. I saw her first on the 10th. She was somewhat anemic, rather fleshy, otherwise healthy-looking. The uterus appeared somewhat enlarged, soft, especially the cervix. It was pushed over to the right side, rather freely movable up and downward upon a tumor filling out the right half of the Douglas cul-de-sac. The tumor was rather soft, nodular, partially fluctuating.

Considering the main features of the history of the case—namely, (1) cessation of menses in a woman who had always been regular to the day; (2) a hemorrhage starting in seven weeks *after* the last menses and keeping on over ten weeks without any fetus passing; (3) one-sided colicky pains, commencing soon after the menses stopped and growing more intense, radiating down into the right leg; (4) subjective symptoms of pregnancy, like nausea, morning vomiting, persisting all along; (5) a fainting spell on May 8th, suggesting internal hemorrhage; then considering further that characteristic touch of the pregnant uterus, together with the displacement of the uterus by a rather soft tumor situated on the same side where all the pains were located—I say, considering all these points, I thought they constituted a number of pathognomonic symptoms to warrant the diagnosis of extra-uterine pregnancy with rupture threatening or having already occurred (on that Sunday). Dr. Kadison, the family physician, was of the same opinion, and urged the patient to submit to an immediate operation.

On May 28th I performed laparotomy, the patient being in the Trendelenburg position. There was some old blood found in the abdominal cavity, as the result of internal hemorrhage. The uterus was enlarged. The left tube was transformed into a cystic tumor, which was at once recognized as an ovisac. It was so arranged around the uterus that the tumor filled out the right half of the pelvic cavity, the uterus being somewhat turned around its longitudinal axis. There being no firm adhesions recognized, I lifted the tumor out of the pelvis, when it burst, allowing a living fetus to escape through the tear in the

amniotic sac. I ligated the tube in three parts, washed out the abdominal cavity with sterilized water, and closed the abdominal wound with silkworm stitches, without drainage.

The case went on as favorably as we could wish. There was no rise of temperature above 100° . She is now ready to return home.

You notice under what favorable conditions this case presented itself throughout. To me it is another illustration of the correctness of Tait's advice that an immediate operation should be performed as soon as the diagnosis is made. As long as the fetus has not left the tube there is not much danger from hemorrhage, the operation amounting technically to the same thing as an ordinary tube operation. It is only *after* rupture, and after the placenta has found its final insertion in some place which later on cannot be ligated, that the danger of uncontrollable hemorrhage gradually develops.

The fetus was a male, and, according to the history of the case, was from 16 to 17 weeks old. It showed life by moving its limbs while I ligated the tube. It also made an effort to draw a breath. I wish to call your attention to the condition of the tube, which at its uterine end is slender and hard, while the body of the uterus had shown all the symptoms of early impregnation. I have seen other cases of tubal pregnancy where the muscular elements of the tube were immensely hypertrophied in harmony with the enlargement and softening of the uterus. The old blood found in the pelvic cavity had no doubt escaped through the fimbrial end of the tube, which had not become entirely closed.

DR. W. W. JAGGARD.—I congratulate Dr. Banga on making a brilliant diagnosis by a logical method. He helps to place the operative plan of treatment of extra-uterine pregnancy before rupture in this country on an impregnable basis. A case like this, in which a diagnosis is logically made and sustained by operation, is the most powerful means that can be adopted to do away with the so-called American treatment of extra-uterine pregnancy by electricity.

The credit for the plan of treatment followed by Dr. Banga is due to Dr. J. Veit, of Berlin, and is not due to Mr. Lawson Tait, of Birmingham.

DR. FRED BYRON ROBINSON.—I would say a word relative to the tube in pregnancy. The doctor noted that the muscular wall of the tube was much hypertrophied. I examined some thirty cases of ectopic pregnancy, and I could find but little muscular hypertrophy. The longitudinal muscles may be slightly thickened, but the circular muscles are scarcely enlarged. The extra thickness of the tubes is due to inflammatory products and exudates. In rabbits the longitudinal muscular layer elongates, but the circular scarcely any. Hence in irregular involution the tubes become spiral on account of the irregular shortening of the longitudinal muscular layers.

TRANSACTIONS OF THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, October 27th, 1892.

ROBERT A. MURRAY, M.D., *Chairman.*

DR. GEORGE M. EDEBOHLS presented some patients with movable kidney, or upon whom he had performed nephrorrhaphy for that condition, in illustration of a paper which he read later.

UNION OF THE LABIA MINORA AFTER CHILDBIRTH.

DR. BROOKS H. WELLS presented for DR. JOHN WOODMAN the following history and photograph.

"On March 12th, 1892, Mrs. E. H., 36 years old, consulted me for an eczematous condition of the ear which was not fully accounted for by the local conditions. I suspected that there was irritation of the nervous system affecting the bodily nutrition, but it was only on account of the absence of a known cause, and a remark made by her accidentally as she was about to leave my office, that I was led to make a uterine examination, with the following result:

"Inspection showed the labia minora to be grown together, as seen in the accompanying illustration. Examination with one finger showed the cervix to be lacerated and eroded. There was profuse leucorrhea and considerable peri-uterine inflammation involving the ovaries, which could be readily distinguished. The union of the nymphæ formed an apron, against which the urine flowed in micturition, and behind which formed large quantities of muco-purulent discharge. A probe could be passed, through a small opening just below the clitoris, downward and out of the opening at the posterior commissure. A director was inserted through these openings and the nymphæ divided under cocaine. The parts have healed nicely, and she is now able to have a speculum inserted and is being treated for the internal troubles. She had been married eighteen years, having had no miscarriages, and only one child two years after marriage. She was attended by a midwife and was in labor eighteen hours. Before childbirth coitus was complete and satisfactory, but after the confinement it was several months and after repeated trials that an entrance was gained, and then with difficulty. For the

last two years she has not lived regularly with her husband, and the difficulty of coitus has increased. She suffered from burning and pain during micturition, otherwise she had no recollection of having any trouble about the genitals except difficulty in coitus."

Dr. Wells thought the case interesting on account of its rarity. Adhesion of the labia was not very unusual as a sequence of some severe inflammation of the vulva in children, but in his experience the condition shown was much less frequent than



atresia of some other portion of the genital tract. In this case it had also been the cause of so great marital infelicity that a divorce had been sought.

LYMPHOSARCOMA ; HYSTERECTOMY.

DR. C. D. JONES presented specimens from two cases, accompanied by the following histories :

CASE I.—Mrs. A., age 31, married, mother of two children ; has had one miscarriage. Patient has complained of pain for eleven years. Her present trouble dates from the abortion, which occurred three years ago. One year ago she had an attack of pelvic peritonitis which confined her to her bed for over a month.

She complained of severe dragging pains on both sides of the pelvis, with dysmenorrhea and leucorrhea. Menstruation was profuse. On examination the uterus was found to be retroverted and fixed, and on either side were two firm masses bound down by adhesions.

Operation September 1st, 1892. Omentum adherent over pelvic organs. Uterus, tubes, and ovaries adherent to the floor of the pelvis and matted together with adhesions. Tubes and ovaries dug out and tied off. I found it necessary to break down the adhesions surrounding the appendages on both sides and behind the uterus before one side could be ligated. Recovery uneventful.

CASE II.—The woman from whom this specimen was removed was 49 years of age, married twenty-two years, and the mother of three children. Menstruation had always been regular, but during the last two or three years had become profuse. The uterus was curetted about a year ago, but without benefit. On July 19th the uterus was again curetted, with patient under ether. Uterus was found to be enlarged and abnormally soft. Scrapings were immediately examined by Dr. Heitzmann and pronounced to be small, round-celled or lymphosarcoma.

On July 21st colpo-hysterectomy was done. I was assisted by Drs. McGillicuddy, Wunderlich, and Shaw. A combination of ligature and forceps was used. Owing to the presence of several interstitial myomatous tumors I was unable to anteverte the fundus, so the broad ligaments were secured from below upward and the uterus cut away. Patient made a good recovery and was up on the thirteenth day. She has been well since.

INSTRUMENTS FOR TRANSFUSION.

DR. H. J. GARRIGUES presented a case of instruments for transfusion, either of blood or of a saline solution.

SYMPHYOTOMY KNIFE.

DR. GARRIGUES also presented a Galbiati's knife—a copy of one he obtained from Italy several years ago, but with a metallic handle to conform to the requirements of modern antiseptic surgery.

SYRINGE FOR INTRA-UTERINE GLYCERIN INJECTIONS TO INDUCE LABOR.

DR. J. CLIFTON EDGAR presented a glass syringe containing four drachms, with catheter attachment, for introducing sterilized glycerin into the uterus in cases in which it was desired, on account of pelvic deformity or other reason, to induce premature labor. He had employed it that morning in a case which had, it was supposed, two or three weeks to go before the regulation time, and it had caused labor pains to begin inside of two or

three hours. The soft rubber tube connected with the syringe was introduced up into the uterus a distance of five and a half inches, and the glycerin then injected; a little escaped.

Discussion of the specimens was taken up. DR. BOLDT said, regarding Dr. Jones' specimen of uterine sarcoma, that this was a rare condition. He had himself seen three cases, the tumor in one weighing four or five pounds.

The CHAIRMAN said, referring to Dr. Garrigues' symphysiotomy knife, that the first case of symphysiotomy in this country occurred only recently in this city; soon two more cases followed in Philadelphia.

DR. GARRIGUES remarked that the operation would probably be found more difficult than one was likely to suppose, judging by his experience on the cadaver.

Referring to the case of instruments for transfusion, DR. WYLIE said it had been his custom for years in all formidable operations, especially in laparotomy cases, to inject as much as a quart of a saline solution, heated to 110° F. or more, into the rectum, and he had sometimes employed, before the operation was over, as much as four or five quarts, all of which was absorbed. It did the double service of preventing shock and avoiding a possible necessity for transfusion. Ordinarily the rectum would not hold such quantities of fluid, but during an operation, when blood was being lost, it did. The bowel was always cleaned out previous to operations.

The CHAIRMAN said he was familiar with Dr. Wylie's method, but doubted whether it would do in obstetric cases with rapid loss of blood; there transfusion would be necessary.

Referring to the instrument presented by Dr. Edgar, DR. GARRIGUES had found the introduction of a bougie as perfect a method as any, and less complicated than the introduction of glycerin by the syringe and catheter; the elastic bougie could be found at any drug store.

DR. GRANDIN thought the glycerin method would be better in some cases, because it provoked labor sooner, as a rule; it was being used considerably in Europe and was commended highly.

DR. H. J. GARRIGUES read the first paper of the evening, entitled

REPREHENSIBLE, UNNECESSARY, AND NECESSARY ANTISEPTIC
MIDWIFERY.

The beneficial results of antiseptic methods were shown by the statistics of the Maternity Hospital, with which he was connected, and by others. In the maternity connected with the Department of Public Charities the present antiseptic measures were introduced in 1883. During the nine years prior to that

time the maternal mortality had been one hundred and forty-six in three thousand five hundred and four deliveries. In three thousand one hundred and seventy cases of delivery since then there had been only thirty deaths. Better results still were obtained in some of the European maternities, and also in the Sloane Maternity of this city, where they had not to contend with certain conditions existing in the maternity with which he was connected, among which were frequent changes of internes and nurses.

Creolin had been substituted for corrosive sublimate, a one-per-cent emulsion now being used in vaginal and intra-uterine injections. Creolin possessed the excellent qualities of being a lubricant, an antiseptic, and a hemostatic, and was also innocuous even when taken internally in considerable doses.

Dr. Garrigues thought the routine use of ergot might be dispensed with. The last time he was on duty he did not use it, and saw no disadvantages from leaving it off. A decided advantage of the bandage placed over the vulva after delivery was its deodorizing effects. Some European obstetricians now forbade vaginal examinations altogether in ordinary cases, but the author thought this was wrong. It was unnecessary, because under antiseptic conditions no infecting germs would be carried in; and it was wrong, for the beginner would not get knowledge which was indispensable for the recognition and treatment of abnormal cases. But the nurse should not make vaginal examinations. If all went well after the birth of the child the finger did not touch the genital organs. Instruments were always disinfected if used.

In his own private practice Dr. Garrigues had neither deaths nor sickness from labor, but he was not infrequently called in consultation where death resulted from childbirth or abortion. Indeed, the old rule had been reversed, and it was now safer for a woman to be delivered in a hospital than by her family physician. The reason was neglect on the part of the general profession to apply antiseptic principles.

At the close of his paper DR. GARRIGUES offered the following resolution, which was adopted later:

"Whereas, Experience both in this country and abroad shows that by strict antiseptic measures the maternal mortality in lying-in hospitals may be reduced to a few per thousand;

"Whereas, Death due to childbirth or abortion is yet common in private practice;

"Resolved, That, in the opinion of the Section on Obstetrics and Gynecology of the New York Academy of Medicine, it is the duty of every physician practising midwifery to surround such cases in private practice with the same safeguards that are being used in hospitals."

DR. EGBERT H. GRANDIN desired in the first place to second the resolution as being an expression of opinion emanating from

this Section, and especially from the one man who was entitled to the credit of having introduced a system of antiseptics into obstetrics in this country. There were other institutions in this country and private practitioners who had realized not only the value of, but the absolute necessity for, antisepsis or asepsis in obstetric work.

The paper left no scope for discussion. Nowadays, it seemed to him, every one who had anything to do with obstetrics was prepared to admit that it was inexcusable not to surround the lying-in woman with every precaution which recent knowledge had taught us was necessary for her safety, not only at the time of delivery, but during the puerperal state and beyond it. It was an undoubted fact to-day that the occurrence of septicemia was due to a faulty technique. It was either the fault of the nurse, of the physician, or of the patient herself. It therefore became the duty of the physician to see that he was himself clean, as were also the nurse and patient. This had been abundantly proven in hospital service. Were they able on Blackwell's Island to control the nursing staff and the resident house staff as they could at the Sloane Maternity, he was satisfied their results would be not more than one death out of a thousand, as it had been in the latter institution. We might all differ in details. The point was not so much antisepsis as asepsis—not so much the use of antiseptic agents as cleanliness. The chemical agents were simply a means to an end. While in hospital practice he was glad to use antisepsis, in private practice he sought to secure cleanliness, but did not think it very important whether he used bichloride, creolin, or carbolic acid; it was cleanliness that he sought.

In private practice he went even a little further than the author advised. Before labor began his nurse was instructed to scrub the vulva, and he personally wiped out the vagina, first distending it, for the reason that no amount of douching would penetrate the rugæ. He thought it would be wise to add that precaution to the others named by Dr. Garrigues.

DR. MALCOLM McLEAN said, regarding cases where intra-uterine manipulations were necessary, that he had on former occasions called attention to the fact that under ordinary circumstances such manipulations were, or should be, within the amniotic sac, which interposed between the hand and the walls of the uterus, protecting the latter against possible infection. Moreover, it showed that the intra-uterine douche, as a rule, was superfluous and accompanied by a certain amount of danger, and that it ought not to be practised as a routine. He indorsed the paper heartily.

DR. COLLYER thought, before the mortality could be lessened markedly outside of institutions, it would be necessary to take obstetrics out of the hands of ignorant midwives. He had seen

no failures under the antiseptic precautions recommended in the paper.

DR. VINEBERG inquired of the author whether he would recommend immediate repair of injuries.

DR. AGRAMONTE doubted the innocuousness of creolin taken internally, and inquired of the author how large doses had been taken with safety.

THE CHAIRMAN said that, being in the same maternity as Dr. Garrigues, he had been fully satisfied with his method. Some methods which must be carried out as a routine in an institution could be dispensed with in private practice, where the responsible party was the physician actually in attendance. Notwithstanding he did not carry out all the antiseptic rules of the hospital in private practice, yet he had not seen a case of sepsis among his own patients, although he had gone through three epidemics of puerperal fever. He did, as Dr. Grandin had suggested, apply strict cleanliness.

There was no danger in going from one case to another, even from an erysipelatos patient to a confinement case, provided strict cleanliness were observed; the clothes being changed, and the body, including the hair and beard, washed.

DR. GARRIGUES closed the discussion. He recognized, with Dr. Collyer, the desirability of regulating midwifery practice, but this was a difficult question. In writing his paper he had not had the midwife in view, but rather his professional brethren. Small perineal tears he would repair at once. Some physicians in Munich took forty grains of creolin internally three times a day for a long time. As to cleanliness, there was no doubt all were agreed on the principle, but the word cleanliness conveyed a different meaning to different persons. If one spoke only of cleanliness the general practitioner was likely to think he had done enough if his hands were in a condition which would be called clean in society. Drs. Murray and Grandin, he said, used not only general cleanliness, but also special remedies which were known to kill the cause of puerperal fever.

The resolution was then adopted.

DR. GEORGE M. EDEBOHLS read a paper on

MOVABLE KIDNEY.

There was no subject more practical to-day. In spite of the fact that movable kidney had been written about more or less for a dozen years, very few physicians seemed to know much about it. It existed, he thought, in about one case of every six consulting the gynecologist. It was more frequent in women than in men. He had found it in only two men, which, however, was not astonishing since his practice was among women. Among causes tight lacing had been mentioned, but he thought a well-fitting corset gave the greatest relief aside from an opera-

tion. He believed the usual cause was absorption of the perirenal fat, although other agents might play a part. Movable kidney meant one moving in the hollow of its capsule, while floating kidney was one with an abnormally long mesonephron, probably being an exaggerated condition of movable kidney. The right kidney was much oftener movable than the left.

The symptoms were more severe in the earlier than in the later stages, the greatest suffering being when the circle of displacement showed a radius of four to ten centimetres. There were digestive disturbances, general nervousness, epigastric pain, cardiac palpitation, uncomfortable feeling when lying on the left side. The symptoms became more manifold when there was associated disease of the genital apparatus. The symptoms were intensified the first months of pregnancy, diminished during the latter half of pregnancy when the kidney was lifted by the rising uterus.

Opinions differed as to the cause of the symptoms, but the author thought it was traction upon, and irritation of, the great sympathetic ganglia.

The diagnosis was easy. It was evident when the kidney was felt in any other position than the normal one. As a rule, the kidney was not painful when manipulated, but now and then the patient felt a slight nausea.

As to the prognosis, when the kidney once became movable it never again became firmly fixed in its normal position except by operation. The mobility might be diminished, however, by improved nutrition and deposit of fat about the organ.

Inability to secure results from the bandage, and being able to effect immediate cure by nephrorrhaphy, had led him to resort to the latter treatment where the symptoms were severe enough to justify it and could not be relieved after correction of other possible causes, such as disease of the genital organs. He condemned nephrectomy for this condition. He had performed nephrorrhaphy in eleven cases with one death. The fatal result was from peritonitis, caused, presumably, by diphtheritic germs from his own throat, as he was told afterward that a soreness of the throat which he had, slight at the time of the operation, was diphtheritic. In the operation as it was performed by Dr. Edebohls, the capsule along the entire convexity of the kidney was incised, stripped back a little but not excised, and sutures were passed fastening the denuded portion of the organ to the muscle in its bed. The anatomical and therapeutic results were all that could be desired. None of the patients wore a support after the operation. A history of several cases accompanied the paper.

DR. W. GILL WYLIE had frequently found the kidneys the cause of the symptoms when examining women for presumable disease of the genital organs. He was not prepared to go as far as Dr. Edebohls, especially in defining the symptoms so clearly

and arriving at so definite a conclusion that the cause was a movable kidney. He had operated twenty times on the kidney, seven times removing it for disease, but only three times sewing it up, or doing what was called nephrorrhaphy. He might have done this oftener, but it was difficult to get the consent of the patients. He did not regard it as a very dangerous operation in the hands of an expert surgeon. All of his twenty cases recovered except two, and these were already in a septic condition from suppurative kidney.

He was not inclined to look upon the movable kidney as the cause of all the patient's symptoms; he was rather disposed to look upon it as upon a displaced uterus which was not at the same time diseased. It was very easy to overstate its influence. He believed there would generally be found relaxation and displacement of other organs also. Still, there could be no doubt that many of the women with displaced kidney suffered in a peculiar nervous way which was somewhat characteristic of the condition, and there, he thought, an operation should be done. Displacement of the kidney existed in about twenty-five per cent of the better class of women, or those likely to have imperfect development of the genital organs, and he looked upon imperfect development as one cause. Another cause was tight lacing in early life, particularly because of its pressure upon the liver. Yet the corset might give some relief by holding the kidney up afterward. Displacement of the kidney was found so commonly among gynecological cases that his assistants looked upon it as a normal condition. He would not operate unless other measures failed to give relief.

DR. H. J. BOLDR had not been able to come to such definite conclusions regarding the various symptoms produced by movable kidney as the author had; yet in many cases there was no question about certain symptoms being caused by movable kidney. Unlike the author, he had found the kidney in these cases very sensitive. He had not met with so many cases as the author. In one of his patients the cause was evidently traumatism alone. Dr. Edebohls' operation was a perfect one. The speaker had operated four times.

DR. ROBERT T. MORRIS remarked that anything which disturbed the large sympathetic would produce symptoms, and movable kidney was capable of doing this. Movable kidney was not nearly so common in men as in women. In girls who wore a corset the liver was pressed down by degrees, displacing the kidney a little at a time; yet later in life a tightly fitting corset did most to give relief, if applied while the patient lay upon the back. Movable kidney was often harmless, but in some cases it caused grave reflex disturbances.

DR. H. L. COLLYER believed there was more displacement of the abdominal viscera than was generally supposed. He did not think the cause of the displacements, including movable

kidney, was often traumatism or tight lacing, but rather mal-assimilation with relaxation and elongation of the attachments. Gynecologists were apt to confine their view within too narrow channels.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF CINCINNATI.

Meeting of Thursday, October 20th, 1892.

The President, BYRON STANTON, M.D., in the Chair.

DR. WM. D. PORTER read a paper entitled

MANAGEMENT OF THE THIRD STAGE OF LABOR.¹

DR. E. G. ZINKE.—The essayist has covered nearly every important point connected with the management of the third stage of labor, and I fully concur with what he has said.

One point, I think, was not sufficiently dwelt upon, and that is, when it is found the placenta does not readily follow the delivery of the child, the accoucheur becomes uneasy and begins to make pressure upon the uterus and traction upon the cord when there is absolutely no indication for such interference. In the absence of hemorrhage I do not think that we are justified in resorting to anything more than gentle friction during the interval of, and moderate pressure over and upon the uterus during, the contractions, and to keep the cord merely upon the stretch so as to extract it from the vagina after its expulsion from the uterus. There are some authors who deprecate any traction upon the cord. I think a moderate degree of traction upon the cord, in connection with gentle friction over and pressure upon the fundus, are the two chief factors which secure prompt delivery of the placenta. I have never had any difficulty in my own practice; never saw a case of retained placenta except in cases in the hands of others. As soon as the child has been delivered we should seek to maintain the contraction existing at the time. It is an easy matter to carry the fingers of one hand over the fundus and make gentle traction, friction, and pressure, as already indicated. I have been called, within the last few years, to quite a number of cases of so-called retained placenta. In every instance I found the placenta detached and partly or entirely in the vagina. Gentle traction upon the cord alone was sufficient to deliver the organ in every instance.

DR. E. W. MITCHELL.—The cardinal rule in the third stage of labor is gentleness. All harsh measures are uncalled for.

¹ See original article, p. 84.

whether in crowding down the uterus, or pulling the cord, or being in undue haste. That Nature is able to take care of it is true of the majority of cases; for, as a rule, we find, in cases delivered before our arrival, the placenta as well as the child in bed, and probably if we wait long enough we will find this often to be the case. We sometimes find them in the vagina after a long time elapses. After the child has been expelled and the uterus retracts, a certain length of time must elapse before the organ expels what is now a foreign body—the placenta. I believe the doctor is correct in his criticism of the time formerly required by advocates of the Credé method. Certainly fifteen or twenty minutes is not too short. I think Credé has in later years lengthened the time to fifteen minutes. My own practice is, gently laying the hand on the abdomen, to follow the uterus down upon expulsion of the child and see that it retracts down promptly, and then have the nurse, or patient herself, place her hand upon the abdomen to inform me in case the “ball” disappears. After tying the cord I place my own hand on the uterus and watch the contractions for a few minutes. I have no impatience whatever in waiting half an hour. When the contractions occur and the placenta separates, as you can usually perceive it doing, then a little pressure will cause it to come down to the vulva, or even outside, and the fingers do not need to be introduced into the vagina. My preference is to hook up with the fingers an edge of the placenta rather than make traction on the cord. Where it is expelled by the natural processes I think it will usually be found that the placenta presents by the margins and not the central part where the cord is attached. Certainly this is true at the os uteri when traction has not been made.

DR. TRUSH.—In my obstetrical practice I generally remove the placenta according to the method of Credé, and I do so without waiting any specified length of time, for we may have occult hemorrhage when no blood is visible on inspection. I have seen cases of this character—no visible escape of blood, yet on friction over the fundus, and uterine contraction, the discharge of a large amount thereof. I am hence in the habit of grasping the fundus and making friction upon the same. Immediately after the birth of the child, when contraction takes place, I make pressure after the method of Credé. No one, I should suppose, nowadays would think of making pressure upon the fundus until the organ has been brought to a state of contraction.

As to the occurrence of genuinely retained placenta there can be no manner of doubt. I have encountered such instances, but they are rare.

DR. EDW. RICKETTS.—There is one question arising, viz., What is the Credé method and the best way to make use of it? I agree with the essayist that to grasp the fundus of the uterus

with both hands is the correct method, but I have many times seen physicians make use of other methods which they called the Credé method. It does seem to me that if you force the uterus down into the pelvis you are not using the Credé method.

DR. WM. H. TAYLOR.—I would state that the Credé method was, to stand in front and make the pressure backward toward the spinal column and also downward, so that the uterus was pushed against the pubes. He pressed the organ directly backward toward the spinal column, and then made compression in the axis of the pelvis.

At one time the placenta was delivered immediately. We are now going back to the theory taught twenty-five years ago, that waiting fifteen or twenty minutes or half an hour is the better. If we wait thus long the placenta will probably be expelled spontaneously into the vagina.

DR. E. G. ZINKE.—As to retained placenta and septicemia, it may be of interest to mention two cases recently reported to the Academy of Medicine of Paris. In one case a placenta had been retained for seven months and did not produce sepsis. In the other a physician was called upon to attend a woman, in whom he turned the child, pulled down one leg of the fetus and cut it off; the next day he pulled down the other leg and severed it; on the third day he pulled down the trunk and decapitated, leaving the head of the child within the cavity. He ordered vaginal injections and dismissed the patient. The woman recovered and went to work in the field. Owing to continuous sanguineous discharge she consulted another physician three months after her labor. He removed the head, but there was no sign of sepsis.

DR. PORTER, in closing the discussion, said: The difficulty of understanding the Credé method is due to the fact that the author published it in its several stages of development, and those who have read only the earlier writings get a very imperfect conception of it. For instance, in earlier descriptions of the manipulations involved he says to press with one or both hands; later he expressly states that both hands should be used. In his later writings he also advocated gentle friction over the uterus to stimulate contraction.

With the correct application of Credé's method inversion of the uterus would be an impossibility. The case referred to by one of the speakers should be credited to a perversion of the method, as pressure was probably used during relaxation of the uterus.

It is well enough to have the nurse make gentle friction over the region of the uterus while the physician is busy with the child; but instead of depending on her to notify him of dangerous relaxation, he should frequently reassure himself by placing his own hand on the patient's abdomen.

I think that gentle traction on the cord, for the purpose of

ascertaining whether the placenta is loosened, does no harm in the hands of a skilful obstetrician, but its general adoption would be dangerous. The statement that the fetal surface of the placenta usually presents is borne out by statistics, so far as they have been collected with reference to that point.

I do not believe that it is best to adopt any hard-and-fast rule and say we should wait fifteen or twenty minutes or a half-hour before attempting to deliver the placenta.

If the uterus is kept within the grasp of the hands the placenta can be felt to move, and at the same time the size and shape of the uterus undergo a sudden and decided change. Then is the time to carry a finger into the vagina, secure the edge of the placenta, and terminate the labor.

DR. BYRON STANTON presented the report of a case of

PUERPERAL CONVULSIONS; INTRA-UTERINE DEATH OF THE FETUS,
AND THE OCCURRENCE OF PREMATURE LABOR.

On December 15th, 1891, I was called to see Mrs. K., age 25 years, who had advanced to the end of the eighth month of her first pregnancy. I found her suffering with intense headache, loss of sight, and with mental faculties much obtunded. This condition had commenced the day before and had gradually increased. For about a month she had noticed a diminished flow of urine, and on the day of my visit but a few ounces had been passed. For about two weeks she had felt no fetal movements. There was edema of the legs and feet, and distention of the veins of the limbs. She was much constipated—a condition that had troubled her during most of her pregnancy. For a few days she had had a bronchitis with a very troublesome cough. Temperature 102°. An examination of the urine showed the presence of albumin to about one-third of the bulk on boiling; a microscopic examination showed the presence of many tube casts; the quantity of urine was too small to enable me to determine the specific gravity. A mercurial cathartic was given, followed by antipyrin to relieve the fever and headache. During the following night I was called to see her on account of the occurrence of a convulsion. When I reached the bedside the convulsion had ceased, but the patient was in almost a comatose condition, there was some bleeding from the bitten tongue, and the face was much congested. As the cathartic had not yet operated, an ounce of sulphate of magnesia was given, followed by fifteen-grain doses of chloral hydrate with thirty grains of bromide of potassium, to be repeated according to her condition. She was also ordered infusion of digitalis with acetate of potassa. No further convulsion occurred; the cathartic acted freely. In the next three days the quantity of urine gradually increased and the albumin and casts diminished, partly, it may be, from the continued recumbency, but principally, no doubt,

from the improved renal condition which was manifested by the improvement in the urine.

On the evening of the 19th she began to have labor pains. She was then given fifteen-grain doses of chloral hydrate every two or three hours, according to her condition, until the os was well dilated. As the pains became more expulsive in character, chloroform was administered by inhalation to the extent of keeping her partly unconscious. When the os was sufficiently dilated to permit the application of forceps it was applied and delivery effected, the patient being kept well under the influence of the anesthetic. Instrumental aid was resorted to, not because of the convulsion which had occurred four days before, but for certain local and general conditions which were present and seemed to call for interference without reference to the eclamptic attack. The child was dead, and had been probably for two weeks. No convulsions occurred during labor, and her convalescence was rapid under the use of iron and bitter tonics.

In another case under my care two years ago, a multipara with twin pregnancy, the urine was so heavily loaded with albumin that it solidified on boiling, and the microscope revealed great numbers of tube casts, there was general dropsy, amaurosis, and severe headache. Treatment, much like that pursued in the preceding case, in three days greatly diminished the amount of albumin and casts, removed the headache, and so improved the condition of the woman that labor was unattended with any untoward symptom.

In a more recent case, also a multipara, in whom, at six and a half months, there was diminution of the urine, albuminuria with tube casts, and uremic coma, treatment by cathartics, diuretics, and tonics promptly relieved the condition of the patient, and she went to full term, when she had an easy delivery without convulsion.

Deductions in regard to treatment should not be drawn from a small number of cases of any disease, and these are reported, not because there is any especial rarity in them, but to show the advantages of treatment for the renal disease which is present in so many cases of puerperal eclampsia in which there are found albumin and tube casts in the urine.

The induction of labor is often advised in cases of puerperal convulsions, and by some when marked albuminuria is persistent, although no convulsions have occurred. In regard to the propriety of this resource there is great difference of opinion. It seems to me, however, that it must be very seldom indicated. Indeed, if labor has not begun, the time of delivery should, in my opinion, be delayed as long as possible, so as to gain time in which to treat the renal disease, excite the emunctories, improve the condition of the blood, and strengthen the nervous system so that it may be enabled to withstand the exhausting effects of labor. Even one day of prompt treatment is sufficient in most

cases to effect an appreciable improvement in the condition of the urine, and each day of delay is so much time gained in which to prepare for the parturient effort.

Whatever view we may entertain in regard to the cause of puerperal eclampsia—whether we regard it as due to anemia, or the result of urea or other poison circulating in the blood, or of bacteria or the ptomaines produced by them, as has been claimed by Dr. Bayard Holmes and others, or dependent upon nervous or vascular tension—we must, I think, admit that each hour of time that can be gained for the removal of the condition predisposing to eclampsia, and for preparation for, or fortification against, the effects of labor, adds to the safety both of mother and child. There is this difficulty in settling the question: that some women have albuminuria and yet have no convulsions, and others may have convulsions without albuminuria preceding the attack; but the very frequent association of nephritis and eclampsia should cause us to fear the latter when the former is present.

Although pregnancy may be the cause of the conditions which lead to eclampsia, the immediate removal of the cause is not to be attempted until some of the abnormal conditions have been relieved, the increased impressibility of the nervous system, or *convulsibility*, alleviated, the anemia or uremia removed, and the patient prepared for the battle; and, to carry the simile of battle further, the physician who would induce labor simply because of the occurrence of convulsions, or of the conditions so frequently and forcibly suggesting the liability of their occurrence, may be likened to the general who would go into battle with forces unprepared for the conflict.

In cases where albuminuria occurs and urea is deficient early in pregnancy, or in cases where a woman with chronic nephritis becomes pregnant, or in cases in which persistent medication has shown that the condition is one not amenable to treatment and convulsions are actually present and uncontrollable by any other means, labor may with propriety be induced, and, when commenced, should be speedily completed.

The proper treatment of puerperal convulsions during labor is speedy delivery; that of puerperal albuminuria is the prevention of labor until the renal condition can be relieved.

DR. C. D. PALMER.—There is no question in obstetrics which in its pathology is more obscure than this of the causation of puerperal uremia and its results and puerperal eclampsia. There is no definite relation between uremia and albuminuria. General practitioners often infer that there is much uremia if the urine is highly albuminous, and *vice versa*. Yet there may be little uremia although much albuminuria, and much uremia although little albuminuria. The urine oftentimes becomes albuminous as a result of the convulsions, when prior to them it was normal.

The pathology of this subject being unsettled, we are not to infer that the treatment is. The practical management of these cases has been clearly defined in recent years. After having acted freely on the bowels with a cathartic and on the skin with the hot pack, repeated if needed, the best remedies are tincture of veratrum viride in large doses by the mouth, morphia hypodermically, and chloral by the rectum. The kidneys having ceased action more or less completely, we must supplement that defective action by an increasing compensatory action of the skin and bowels. Morphia allays nervous irritability and excitability, while veratrum relaxes the vascular and nerve tension. Venesection, now largely discarded, is needed only in plethoric cases to relieve and protect the brain. Chloroform can generally be omitted, for it has oftentimes done harm.

As to the induction of premature labor, the following rule has been my guide. If the urine is becoming more scant, more albuminous, and the uremic symptoms are increasing, induce labor. If the urine is becoming more abundant, less albuminous, and the uremic symptoms not increasing, allow gestation to go on.

DR. W. H. TAYLOR.—Mrs. K., first pregnancy and delivery two years since, in all respects normal; remained in good health till sixth month of second pregnancy, when she began to have attacks of violent pain in the epigastrium, attended with eructations of large quantities of gas but no vomiting. Carminatives and sedatives afforded but little relief. The attacks recurred at intervals of a week or ten days, continuing for twenty-four hours. Later vertigo supervened and the legs became edematous. The sight of the left eye was greatly impaired and the upper part of the left side of the face was edematous. The secretion of urine was reduced to probably one-half the normal amount. The urine contained twenty per cent of albumin by bulk, though I failed on repeated examinations to find any casts.

The patient was ordered hot moist packs every other night, with daily doses of Hunyadi water and fifteen drops of tincture of ferric chloride and ten drops of tincture of digitalis three times a day. The hot packs seeming to produce dyspnea, hot-air baths were substituted, but the other treatment was continued, with very rapid amelioration of all symptoms. The urine increased in quantity, the edema disappeared except some in the legs, the headaches and gastric symptoms were removed, and at the time of delivery there was no indication of any convulsions, and within a month thereafter the woman appeared perfectly well.

DR. TRUSSE.—It has been stated that convulsions would not take place if patients were not in a highly nervous state. Now, in the case reported albuminuria was present, then the patient was exposed to inclement weather, and thereupon convulsions followed. This is just what is liable to happen in any case of

chronic nephritis, male or female—a little additional exposure, and the function of the kidneys, already greatly impaired, is completely arrested, uremia and its varied phenomena following. An exalted nervous excitability in pregnant women is, I believe, generally conceded, but that this alone should be adequate to occasion convulsions I am loath to admit.

DR. ZINKE.—I would report the case of a young woman, primipara, young, handsome, wealthy, and everything to live for. Her urine had been examined about a week before, but no albumin found. The labor appeared normal, and the os opened readily; the first stage did not exceed ten hours. At the end of the first stage—2 A.M.—she was thrown into convulsions, during which the membrane ruptured. The head of the child descended readily to the floor of the pelvis. I promptly delivered with instruments without the slightest injury to the soft parts of the mother. When the convulsions ceased the temperature was found to be normal, the pulse 80. The placenta promptly followed, the uterine contracted firmly, and the patient, after being washed and dressed, felt comfortable, complaining only of headache between the eyes. Two hours later she had another convulsion, at 4 A.M. another, another at 8, at 10 another, and a slight one at 11 o'clock. Dr. Stanton was there shortly after the attack at 8 o'clock. The temperature then was 101.5° and the pulse about 110; but with each subsequent attack the temperature went up, until at 3 o'clock in the afternoon it had reached 108° and the pulse 173 to 180. The urine was heavily loaded with albumin and contained tube casts. She died the following midnight, twenty-two hours after labor. There was one feature of the case which might illustrate in a measure Dr. Mitchell's theory: this patient had lost her uncle, to whom she was much attached, just one week before her delivery; her mother had died just one year before. She also had ill forebodings, and firmly believed she would die during confinement.

DR. BYRON STANTON.—The object of my paper was to bring about the discussion of albuminuria of pregnancy. The albuminuria should receive very prompt attention and be treated until the renal condition improves. In regard to the remarks of Dr. Trush as to the amount of urine, I will say the urine was diminished. In these cases I think it is proper to employ treatment for the purpose of increasing the amount of urine. The case reported by Dr. Zinke would confirm the statement, I think, of Dr. Mitchell—viz., that in these cases there is peculiar susceptibility on the part of the patient. The patient was a person of nervous, susceptible temperament; and I think we should keep in mind that all women have exalted susceptibility of the nervous system at this time, and one who otherwise would not be regarded as nervous will, under the influence of pregnancy, become very easily excited and disturbed—a condition which some one has termed a condition of convulsibility.

SILK PEDICLE LIGATURES PASSED BY URETHRA AND CERVIX.

DR. EDWIN RICKETTS.—Two years ago I performed an ovariectomy in which I had the pedicle attached to the bladder. One ligature was applied to the pedicle proper, and one to the pedicle attached to the bladder. One year later the one attached to the bladder had worked through the bladder and was passed per urethram. The patient suffered from cystitis, but I did not think of the ligature producing the trouble we had to deal with.

Last April a lady from Portsmouth came here suffering from an abdominal tumor. Upon opening the abdomen a fibroid as large as my fist was found in the region of the Fallopian tube, and I decided to remove it by ligature and drop the pedicle. The ligature was applied in a figure-of-eight knot. Six months afterward this ligature was taken from the cervix by the patient and returned to me.

CASTRATION FOR DYSMENORRHEA FROM IMPERFECT DEVELOPMENT.

DR. RICKETTS.—A girl, 16 years of age, began to menstruate at 15. The menstruation was of the most painful character. Upon vaginal examination I found simply the os, with no cervix whatever. Upon giving her chloroform a tumor could be felt to the left. On account of the extreme pain I decided to make an exploratory incision. I found the left ovary absent. The uterine cavity was one-half inch in length. The fundus of the uterus was very small. I decided to operate, and, if possible, bring about the menopause by removal of the appendages. I felt she was not a fit subject to go through life and be subjected to the risks of pregnancy. The tumor proved to be an ovary. It was with difficulty that I could bring the malformed uterus up high enough to apply the ligature.

 ABSTRACTS.

1. WINTERNITZ: PERFORATION OF THE AFTER-COMING HEAD (*Centralblatt für Gynäkologie*, No. 28, 1892).—If the child is large, the pelvis contracted, and rapid delivery is indicated: if, furthermore, perforation of the after-coming head is difficult or impossible, decapitation of the fetus and perforation of the in-utero-remaining head may become a necessity, as the following case will illustrate:

Vpara, æt. 32; contracted pelvis. Conjugata vera 7.5 to 7.7. Previous labors all instrumental. Suffers from uterine hemorrhage caused by premature detachment of the placenta. Os dilated, breech presents, child rides upon the prolapsed cord. After extraction of the body it was impossible to draw the very large head through the contracted pelvis. On account

of another severe hemorrhage rapid delivery was urgently indicated; and as several attempts to diminish the size of the head proved ineffective, because the child's body completely filled the vagina and prevented the introduction of the perforator, decapitation of the child with a pair of strong scissors was easily performed. The detached head was next turned so that the occiput presented, and, after fixing from above, was readily perforated and extracted with the cranioclast. J. R.

2. ISIRNE, J.: OVARIOTOMY DURING PREGNANCY (*Archiv für Gynäkologie*, vol. xlii., part 3).—The correct diagnosis of pregnancy complicated by ovarian tumor is difficult, and cases are cited where the pregnant uterus has been mistaken for a new growth and punctured or incised. Pregnancy generally hastens the growth of the tumor, and is apt to cause twisting of the pedicle and the formation of adhesions. Puncture of the cyst produces temporary relief, and, if performed during the last months of gestation, may permit the patient to pass through normal labor. As a rule, the tumor rapidly refills, and dangerous complications, such as hemorrhage and sepsis, have been observed. If neither extirpation of the tumor nor extirpation of its contents is practicable, and the tumor obstructs the pelvis so that delivery at full term is impossible, the induction of premature labor may come into question. Pregnancy complicated by an ovarian tumor is always a grave condition, and the removal of the tumor must be considered. The results of this operation are nearly as good as in uncomplicated cases. Ols-hansen has performed the operation twenty-six times without a single death. The dangers to both mother and child increase with the progress of gestation. The results are most favorable for the mother in the second, third, and fourth months, and for the child in the third and fourth months, but good results are obtained even in the last month of gestation. J. R.

3. KEHRER: ATRESIA OF THE GENITAL TRACT AND ITS TREATMENT (*Der Frauenarzt*, No. 7, 1892).—Congenital occlusions of the genital tract are generally without symptoms until the advent of puberty, when the retained menstrual blood causes a distention of the parts (hematocolpos, hematometra, hemato-salpinx), producing distressing symptoms which become more aggravated with every succeeding menstrual epoch. K. reports a case of absence of the vagina, uterus unicornis distended by menstrual blood, and an empty rudimentary horn. After endeavoring to tunnel through the septum between bladder and rectum for about five centimetres, the operation had to be interrupted on account of the proximity of the ureters and the danger of causing a fistula. Ten days later celiotomy was performed, the ovaries and tubes were removed, and the uterus, which was the size of a fist, was incised, relieved of its contents,

and then sutured to the abdominal walls, as is customary in ventro-fixation for retroflexion. The patient recovered and the uterus rapidly atrophied.

The author lays down the following rules: If the menstrual epoch has but lately been established, and the atresia consists of a membrane of even considerable thickness, this should be excised and the raw edges sutured together.

Has menstruation existed for a year or more, the tubes are likely to be distended and there is danger of their rupture or the decomposition of their contents. In these cases salpingotomy must be performed. The question of the propriety of causing sterility does not need to be entertained, because conception has never been observed in these cases.

When there is an entire absence of the vagina and it is impossible to reach the uterus from below, cœliotomy is indicated. The ovaries and tubes are to be removed, and the uterus, after being emptied, is sutured to the abdominal wall. J. R.

4. SIPPEL, A.: SPONTANEOUS HEMORRHAGE FROM THE UMBILICUS IN INFANTS (*Centralblatt für Gynäkologie*, No. 25, 1892).—A healthy child, 11 days old, died from umbilical hemorrhage. The blood came from the left umbilical artery. Digital compression, acu-pressure, and styptics were ineffective in stopping the bleeding. The parents objected to a cœliotomy, which would have given access to the bleeding point and probably saved the child's life. A subsequent post-mortem demonstrated that the lumen of the left umbilical artery was wide open, and a macroscopical examination made it appear probable that the contractile muscular fibres of the vessel were not well developed. The bleeding may have been caused by a detached thrombus, as it followed a change of dressing. The microscope proved the presence of microbes, but it is improbable that they had caused an infectious endarteritis resulting in hemorrhage. J. R.

5. STOCKER: CANCER OF THE UTERUS; HYSTERECTOMY IN THE SIXTH MONTH OF GESTATION (*Centralblatt für Gynäkologie*, No. 32, 1892).—IXpara, æt. 36, in the sixth month of pregnancy. Fundus two fingers above the umbilicus; fetal heart sounds clearly heard. Four months ago she began to have pain in her right side, brownish vaginal discharge, and hemorrhage. The bleeding gradually increased in severity, and she passed large clots of blood. Examination demonstrated infiltration and thickening of the portio vaginalis. The tissues are soft and friable, and in the centre of the cervix is an ulcer the size of a cherry. The operation resembled the myotomy of Martin—cœliotomy, ligation and division of the ligamentum latum, constriction of the cervix with an elastic rubber tube, opening of the uterus and removal of the dead fetus, amputation of the uterus above the

constriction band, disinfection of the cervical canal, and closure of the abdominal wound. The stump (cervix) was removed by vaginal hysterectomy. Little blood was lost during the operation. Recovery uninterrupted. J. R.

6. HARTMANN AND ALDIBERT: LAPARATOMY IN TUBERCULAR PERITONITIS OF CHILDREN (*Annales de Gyn.*, June, 1892).—The authors report three cases in which laparotomy was performed for tubercular peritonitis. The first was a boy of 12 years suffering from a subacute attack of rapid course. The temperature was high, reaching 102° and 104° at night, the pain acute and continuous, vomiting and diarrhea uncontrollable. All these symptoms disappeared after the operation, and ten months later the abdomen was perfectly normal.

The second case was a little girl of 9 years in whom the peritonitis resulted from traumatism, but gave ample evidence of tubercular infection. The child was emaciated in the extreme, suffering violent pain and high fever. Eight months after the operation she was robust, plump, and free from any elevation of temperature; the abdomen was in all respects normal.

The third child was 6 years of age, suffering from tuberculous of the mesenteric glands complicated by tubercular peritonitis. In his case also the operation was eminently successful, and nine months later the child's condition was still satisfactory.

The authors, considering these cases insufficient in number to be conclusive, give the results in forty-eight cases of peritonitis reported by various operators. Two of the children died, forty-six were cured. It was impossible to follow the results in all the cases. Ten were still in perfect health a year after the operation, and three two years after. It is not certain that there was tuberculosis in every case, but histological investigation revealed the presence of the bacillus in eighteen cases; all recovered. The health was excellent after the lapse of a year in two cases, a year and a half in three cases, and two years in one case.

These authors consider these results brilliant.

The exact mode of action of the operation is difficult to determine. Lauerstein holds that dryness and light being fatal to the bacillus, laparotomy acts simply by the removal of fluid and exposure of the peritoneum to light. Cameron believes the cure is effected by removal of the ptomaines, resulting from the development of the bacillus, which have accumulated in the ascitic fluid, and which by resorption would have carried infection to other organs. Van de Warker's theory is that the tubercles cause an inflammatory process upon the peritoneum, which then becomes a culture medium for the bacilli, and that in combating the inflammation we favor a retrogressive action of the specific infection; while Vierordt's opinion is to the effect that the chief value of the incision is in removing the ascites, thereby reliev-

ing the strain upon circulatory and respiratory functions, and stopping the paralyzing effect of the inflamed peritoneum upon the subjacent muscles, which causes auto-intoxication from retention of the intestinal contents.

The majority of writers agree in the opinion that laparotomy merely favors a retrogressive process and fibrous degeneration of the tubercles by a method as yet not fully understood. The extensive adhesions which form upon the peritoneum after the operation may play some part in this perigraular sclerosis.

The benefits resulting from laparotomy cannot be due to removal of fluid only, since it is as effective in the dry as in the ascitic forms of the disease; neither does its efficacy depend upon the use of washes or of antiseptic powders, for success is often obtained without these adjuncts. Whatever the mode of action, the result is known to be beneficial. Some questions arise in regard to the operation itself: Is a simple incision sufficient? Should we wash the cavity? Should it be drained?

Hartmann and Aldibert follow the incision of the abdomen by washing the cavity with a boric acid solution. Drainage is, in their opinion, contra-indicated except when there is suppuration: not only is it useless, but it may be the starting point of secondary infection, fistula, etc.

The mistake should be guarded against of operating for every case of tubercular peritonitis: only when the peritoneal symptoms are most marked should it be resorted to. Fever and cachexia do not contra-indicate laparotomy: on the contrary, they constitute an urgent indication for its performance.

A. R.

7. KEIFFER: THE PESSARY AS A MODE OF TREATMENT FOR ENDOMETRITIS (*Gaz. de Gyn.*, May 1st, 1892).—Surgical procedures for the relief of uterine displacements are gradually and deservedly replacing the use of the pessary. K. does not plead its cause in these affections, but believes that it has a value in the treatment of endometritis, modifying the subjective symptoms which almost invariably accompany inflammation of the uterine mucous membrane. Catarrhal and inflammatory processes in the uterus cause a sensible modification of the uterine tissue, with increase in the size and weight of the organ itself, followed, as a rule, by its descent, disordered pelvic circulation, and perhaps the formation of adhesions. Pain in the lumbar region, neuralgias, palpitation, and gastralgia are the inevitable symptoms. These are almost invariably relieved by the introduction of a well-chosen pessary. The congestion of the cervix disappears, and there is marked diminution in the leucorrheal discharges and prompt healing of erosions in the vicinity of the external os. With this adjunct to treatment, the application of caustics and the internal use of hot water become more effective, since the prolapsed uterus is uplifted and supported and

no longer drags upon the broad ligaments nor interferes with the arterial, venous, or lymphatic circulation.

The insertion of a rubber ring in the vagina in such a way as to give the uterus equalized support without any pressure upon the bladder, urethra, or rectum, seems more rational than the use of tampons, which rarely remain in position and scarcely ever give any support. The introduction of a series of tampons tied together is contrary to the recognized rules of surgical practice, inasmuch as they interfere with the anatomical relations of organs, free drainage, and the functions of adjacent organs.

The indications for the use of the pessary in cases of metritis are as follows :

1. When endometritis and uterine prolapse co-exist.
2. When metritis is not accompanied by pelvic adhesions.
3. In cases of subinvolution.
4. After curetting in the preceding cases, and especially after curetting in cases of abortion.

A.R.

S. MENCKE: RESORCIN: ITS INTERNAL USE IN DISEASES OF CHILDREN (*Centralblatt f. klin. Med.*, No. 21, 1891).—In the vomiting of children H. has employed resorcin with the most satisfactory results, both in those cases in which calomel had been employed previously and in which the tongue was still somewhat coated, the appetite poor, etc., and in those cases in which there was some collapse or the children were of a feeble constitution. Resorcin should be employed from the beginning of the affection. The vomiting quickly ceases, the children become quieter and fall asleep, the movements are not as frequent and have more consistence. If diarrhea is the principal symptom a little opium is added; but he condemns the use of opium alone, for the contents of the stomach must be disinfected by the resorcin. He gives a mixture containing resorcin (Merek) 0.3 to 0.5; of this a teaspoonful every two hours. He regrets that this drug has not been more universally employed by the profession.

L. S. R.

ITEM.

DR. HENRY T. BYFORD has been elected to the chair of gynecology in the College of Physicians and Surgeons, Chicago, to fill the vacancy made by the death of Dr. A. Reeves Jackson.

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ORIGINAL COMMUNICATIONS.

TWO YEARS' EXPERIENCE WITH PELVIC MASSAGE
IN GYNECOLOGICAL CASES, WITH REPORTS OF CASES.¹

BY

HIRAM N. VINEBERG, M.D.,
New York.

(With twenty-nine illustrations.)

I HAVE chosen the term "pelvic massage" advisedly, for I do not think it just to characterize a procedure as "Thure Brandt's" unless his method is practised in its entirety. My reasons for discarding the various Swedish movements which Brandt employs in conjunction with massage of the pelvic organs I have stated in a paper published in the *New York Medical Journal*, January 24th, 1891, shortly after my return from Sweden. The reasons then given—that they take up too much time and necessitate the aid of a trained assistant—still hold good with equal force. Besides, the experience I have gained since my visit to Thure Brandt has provided me with a more

¹ Read before the Section on Obstetrics and Gynecology of the Academy of Medicine, November 25th, 1892.

valid reason than expediency. My results without the aid of the Swedish movements have been good and will compare favorably with those I observed in Stockholm under Brandt himself. Of course by this I would not wish for a moment to be understood as considering myself his equal either in manual dexterity, expertness, or ability as a diagnostician, for in these three qualities, although only a layman, he has few equals. But the point I wish to make is that I have been able to afford relief, and in many cases effect a cure, by a combination of massage and stretching, without resorting to the various muscular exercises, active and passive, which Brandt employs. It was not long after my return from Sweden that I gave up "uterus lifting" also, as practised by Brandt. Though a valuable procedure, I discarded it because it was uncouth, had the appearance of harshness, was not easily borne by the patient, was a difficult manoeuvre to carry out, and required a skilled assistant. As a substitute I have carried out lifting or elevating the uterus with the fingers in the vagina, keeping the fundus forward at the same time with the hand over the abdomen. In this way I have been able to elevate the uterus so that the fundus would reach midway between the pubes and umbilicus. Dührssen¹² states that he can elevate the fundus to the umbilicus with the two fingers in the vagina. As he does not possess fingers of unusual length, I fail to understand how he accomplishes it. Pawlik³⁴ devised a drum-shaped instrument with which to push the fundus forward and upward; and Sileski⁴⁶ employs a sound with a shoulder, which he introduces within the uterus. The latter course is reprehensible, for it is not free from danger and is at total variance with the principles of pelvic massage.

In practising the method I have not failed to call in the aid of any auxiliary measure which I thought might hasten the object in view—the cure of the patient. Consequently, after a *séance*, I frequently placed a medicated tampon behind the uterus; and in other cases, after I once got the uterus forward, I tried to keep it there until the next *séance* by well-placed tampons. I resorted to the latter procedure especially in those cases in which redressing the uterus gave considerable pain and was attended with some difficulty. If the objection be raised that these auxiliary measures vitiate the results which I claim for pelvic massage, my answer is, if any one will read the histories of the cases embodied in this paper he will learn that most of

¹² Bibliography will be inserted at end of paper.

them had been treated for years with medicated tampons in the vagina without improving the local condition or relieving the woman of her symptoms. For the purpose of comparison I treated a number of cases without following up the treatment by tampons, and could note no appreciable difference in the progress of the cases from those cases in which tampons were used. The only benefit I could observe from the latter course was that in some cases the woman was spared the unavoidable pain connected at times with anteverting the uterus.

It is a matter of surprise to me that the method under question has not made further headway in this country. In Germany it has, within the past six years, gained a firm and extensive footing, and the literature on the subject has grown to considerable dimensions, as a glance at the bibliography (which makes no pretension to completeness) appended to this paper will show. Seldom has a method met with so few dissenting voices as this one has in Germany. The few who at first raised objections on theoretical grounds are now themselves resorting to it. Thus we find Olshausen, who condemned it a few years ago from *a priori* reasoning, confess to a change of front a few months ago. In a discussion at the Berlin Gynecological Society, following the reading of Dührssen's paper, Olshausen⁵¹ said he agreed in the main with Dührssen and that he had great faith in massage when applied to the proper cases, such as para- and perimetritic adhesions and fixations of the uterus. He detailed the history of a case of pelvic exudation of from eight to nine years' date, where the uterus was adherent by a broad, firm band to the right sacro-iliac articulation. In about twenty *séances* the uterus was rendered movable, so that it could be brought almost to the normal position. The case was complicated with a left pyosalpinx, but, as he had observed that it frequently discharged through the uterus, he did not hesitate to employ massage. After each *séance* the woman noted a flow of thin, purulent fluid upon her chemise.

The method is practised extensively in Austria and in Russia. Even in France it has excited such interest that the Government recently sent a commissioner to Stockholm to investigate what there was in it. The commissioner—M. Stapfer⁵⁰—studied for some months with Brandt, and on his return published a most glowing account, advising its immediate introduction into France. He could not, however, refrain from giving a side

blow to the Germans, saying that the method they practised, *sine* the Swedish movements, was only a bastard form, and that none but Brandt's system, without modifications, was worthy of being adopted in his country.

Why is it, then, that American gynecologists so far have accorded this method such a lukewarm reception? The time is past when the reason could be expressed in a broad grin, for no one is, or ought to be, so ignorant of the subject as to offer any objections on moral grounds. Surely every one who keeps abreast with current literature knows before this that the various movements included under the term "pelvic massage" are carried out through the abdominal walls, and are as little likely to excite the woman's sexual desires as is abdominal massage for constipation. The finger or fingers (if two are used) in the vagina merely steady the part to be massaged, and the only movements they are intended to execute are those which loosen or stretch the adhesions and draw the uterus forward and upward. Every respectable person will take care, as he would in an ordinary vaginal examination, to press the vaginal finger against the posterior wall and keep the remainder of his hand from coming in contact with the pubes. Whether a procedure be decent or indecent depends often more on the physician than on the features which enter into it. A mere physical examination of the lungs in a female patient can be made more erotic than a sitting of pelvic massage of an hour's duration. I have applied the method probably to over a hundred different women, and in no instance did I observe any sexual excitement, though I have been keeping a watchful eye for it. Further still, if it be applied only in those cases in which it is indicated, the feelings of the patient during the treatment will be anything but pleasurable, for it cannot be denied that it is attended in most cases with more or less pain. But I have met with only one patient thus far who discontinued the treatment on account of the pain accompanying it. The patient was a hysterical, hypersensitive spinster with a retroversion and general perimetritis, and who screamed out loudly when the abdomen was touched, no matter how lightly. Of course I would not be understood that it is necessary to give much pain in the application of the treatment. The production of pain must be avoided as much as possible, for obvious reasons. The amount of pain we cause must frequently be our guide as to the degree

of force we may use within safe limits. But in stretching adhesions, and in loosening fixed uteri, tubes, and ovaries, a *modicum* of pain is often unavoidable.

In what affections of the pelvic organs is massage indicated? Brandt employs it in all pelvic diseases excepting in fibroid, cystic, and malignant growths and in pus accumulations. Combined with the Swedish movements, I have seen Brandt obtain good results in menorrhagia, metrorrhagia, amenorrhea, and dysmenorrhea. But these are symptoms only, and often due to conditions which we can remedy with the means hitherto at our command.

My course has been to call it into service chiefly in those obstinate affections which resist the ordinary treatment in vogue, and for the relief of which serious operations have been undertaken with results that are far from gratifying. I have reference to the residua of inflammatory processes, found in the form of cicatricial contractions, thickening and shortening of the several uterine ligaments, wide, loose adhesions cementing together the peritoneal surfaces, firm, stout cords and bands passing from organ to organ or from organ to pelvic wall, displacements and fixations of the uterus, tubes, and ovaries. When I had any reason to suspect the presence of pus, whether in a tube, ovary, or cellular tissue, I withheld my hand from treating the case with this method. But every thickened or enlarged tube and every swollen ovary were not looked upon, as they are by some, as being filled with pus, crying out, *Noli me tangere!* It is about time that we came to an understanding as to what is meant by pyosalpinx. The tubes one frequently sees removed, and which contain a few drops of muco-purulent fluid, do not deserve the dignity of the title of pyosalpinx. They do not deserve this from either a pathological or clinical standpoint. I have treated several women (Cases II., V., XI., XV.) with such tubes and they have got well, and some of them (Case V., and others not reported) gave birth afterward to healthy children. Nevertheless I wish to state emphatically that when there is an unmistakable collection of pus in the pelvis, or an acute or subacute inflammatory process going on, pelvic massage is undoubtedly contra-indicated. While I admit it is not always easy even for the most skilful diagnostician to tell whether pus be present or not, errors in diagnosis need not be frequent if one be versed in pelvic palpation and in the

symptoms of pelvic suppuration. None other has any right to engage in this form of treatment, and this is a statement which I desire to emphasize most strongly. I feel it necessary to do this because I often meet with practitioners who, laying no claim to special knowledge in pelvic affections, tell me they are in the habit of employing the method. Here it may be opportune to state that to me it is unintelligible how it can be rightly applied without a properly constructed couch and without having learned it practically. I can only repeat what I have said on a former occasion, and what every one else has said who has written on the subject from practical knowledge: that it is not to be learned from books or articles, nor is it to be acquired in a few days. After a stay of some weeks with Brandt and practising under his supervision, I began to apply the treatment, on my return to this city, with the greatest caution and with the feeling that I still had much to learn. I may have been overcautious, but to my care and caution I attribute the fact that, up to this time, in not a single instance have I done harm with my manipulations. This is in spite of the circumstance that I have used it in several cases where the tubes and ovaries were very much swollen and firmly adherent, and when it was not always possible to be sure at the outset whether pus were present or not. In these cases, at the beginning, I have used none but the most gentle manipulations, and it was only when I learned more about the local conditions and what they could tolerate that I applied sufficient force to stretch and break up the adhesions and replace the organs in their normal positions. The harm that may be inflicted when these precautions are ignored, and when the necessary practical, to say nothing of the special, knowledge is wanting, can be easily understood.

I was twice tempted to use the treatment tentatively in two cases of acute pelvic inflammation before all the acute symptoms had subsided, because everything that I had tried, including galvanism and faradization, left me in the lurch. In the one case it worked well; in the other it produced an exacerbation of an already existing pain, without, however, making the local condition any worse, and of course I desisted from a further use of it. In addition to the class of cases already referred to, I have made use of the method in cases of subinvolution which did not seem to make any progress with the usual modes of treatment. The results in these cases were astonishingly good

and rapid. In one woman, whom I myself delivered, owing to a large child (twelve and three-quarter pounds) and a rather tedious labor, the uterus three months after confinement had not undergone complete involution. I then treated her a whole month with intra-uterine stimulating applications, medicated vaginal tampons, hot and cold douches, ergot, strychnine, etc., and all to no purpose. Subsequently in half a dozen applications of massage the uterus was reduced to its normal size and the leucorrhea and symptoms of bearing-down and weight in the hypogastrium disappeared. In two of my cases (Cases VI. and IX.) subinvolution existed with other complications and was rapidly benefited by this treatment. When we take into consideration the effect massage has upon the uterine tissues these results are to be expected.

Lindblom²⁶ was the first, I think, to draw attention to the fact that when the unimpregnated uterus is *masséed* it can be felt to undergo distinct contraction and then to relax. Arendt¹ described this feature more fully in a paper before the Tenth International Medical Congress. He stated that the contractions occur as follows: The posterior wall first bulges out, then the anterior, and afterward the whole organ can be noticed to grow stouter, thicker, and more firm. This phenomenon can be observed in almost every case, but it was particularly marked in one of my cases (Case IX.). At the commencement of the manipulation the uterus could not be outlined; after a time it could be felt forming, as it were, under the hands; later the whole organ could easily be mapped out, though in a soft and flaccid condition. Continuing with the circling and vibratory movements, one could appreciate it growing firmer, harder, and smaller, and it would remain in this state until the end of the *séance*.

I have had no success with the method in complete prolapsus of the uterus—in those cases in which the uterus and vaginal walls are external and lie between the thighs. I tried it faithfully in three such cases, but only in one was there even temporary benefit. This corresponds with the experience of most other observers. I cannot very well understand how it could be otherwise. For in these cases the uterine supports are so relaxed and atrophied that no amount of manipulation will restore their tone and muscular elements. But in cases where there was only a slight descent, say to within an inch of the

vaginal orifice, I have had good results, providing the floor of the pelvis was in a fair condition. I have treated in all five such cases, and in every case, after a period of treatment lasting from four to six weeks, the uterus remained from one to two inches higher in the pelvis (see Cases VI. and XII.). With this result the symptoms of weight in the hypogastrium and bearing-down sensation disappeared. The symptom of frequent micturition was not always so amenable to treatment. In two of the cases it persisted in spite of the improved position of the uterus.

Now we come to the most important pathological lesions in which pelvic massage is especially indicated and in which I have had the most gratifying results—I mean the residua of inflammatory processes in the pelvic cavity, already spoken of. These form a very large percentage of the cases gynecologists have to treat. Bandl's¹ estimate of fifty-three per cent is below the mark for the cases met with in this city, if I may judge from my own limited experience. In the service of Drs. Emmet and Buckmaster in the Outdoor Department of the Woman's Hospital, at which I assist, the number of women suffering from these pathological lesions is fully seventy-five per cent of the total number. Some of these cases are benefited by the routine treatment of iodine, glycerin tampons, and hot douches, but by far the larger majority fail to receive any relief after months of treatment.

What are the other methods of treatment in vogue for these pathological conditions? This is an important question, for if they meet the indications and are attended with success there is little or no need of pelvic massage. First there is Schultze's method of forcibly breaking up the adhesions, the patient being deeply narcotized. It is admittedly a dangerous procedure and limited by Schultze himself to those cases uncomplicated by disease of the tubes or ovaries. This limitation narrows down the number of cases in which it is indicated to a very small percentage; for, in my experience, it is seldom that a displaced and adherent uterus is found without one or other tube or ovary being diseased and adherent. In the fifteen cases which I report in this paper, in three only was there no tubal or ovarian complication. Further, it does not always succeed in breaking up the adhesions. I reported elsewhere⁵⁴ a case of retroflexion with fixation in which Schultze had failed to free the uterus by three different attempts, while Brandt subsequently succeeded in

bringing the uterus forward in six weeks' treatment. In one of my cases (Case XIII.) the method was carried out by a careful and able specialist, but it was a failure and the woman was made much worse by it. Secondly, we have laparotomy, or, to speak more correctly, celiotomy, the object of which is to remove radically the adhesions and perimetritic bands. The methods followed by different operators vary in many important details, but the end in view is the same. One class of operators extirpate the diseased adnexa; another class, after removing the adnexa, stitch the uterus to the abdominal incision—ventro-fixation; and a third class, the more conservative, are satisfied with breaking up the adhesions, loosening the fixed uterus, tubes, and ovaries, puncturing the ovaries if they contain small cysts, resecting a portion of the tubes if they are not patent, shortening the round ligaments within and outside of the abdomen, and stitching the broad ligaments to draw the uterus forward. The insurmountable objection to celiotomy in these cases is that it itself is prone to be followed by similar pathological conditions which it is intended to remove. Its sequelæ are peritoneal and intestinal adhesions, and as yet no form of technique has succeeded in preventing them. Illustrations of this are constantly met with in literature. Numerous cases are recorded in which a second and a third operation was found necessary to remove the adhesions caused by the prior operation. A pregnant example of this class is abstracted from *Centralblatt für Gynäkologie*, No. 34, 1892, in the "Status of Gynecology Abroad" in the *New York Journal of Gynecology and Obstetrics* for the month of November, 1892: "Triple Laparotomy, with Remarks on the Significance of Peritoneal Adhesions."

"Dr. Odebrecht reports a case in which he performed laparotomy three times on the same woman. The patient was 18 years of age, single, and suffered with pelvic pain and gastric disturbances. The uterus was in sinistro-retroflexion, the left ovary enlarged, sensitive, and fixed. The right ovary was slightly enlarged, but freely movable, and not sensitive to pressure. At the first laparotomy the left ovary and tube were removed and ventro-fixation of the uterus carried out. In a few months the patient returned suffering more severely than before the operation. Laparotomy was again done and the right tube and ovary removed. The uterus was found firmly adherent, by means of a short band, to the lower part of the abdo-

minal wound. It required considerable force to break this up. No other adhesions were found. In the second week after the operation the patient began again to suffer from pain and inability to move about, and great discomfort after partaking of food. At the third laparotomy the omentum was found adherent to the cicatrix of the abdominal wound for its whole length." The subsequent history is given only during convalescence, and states that the patient suffered at first from severe pain in the abdominal wound, but in a couple of weeks this ceased and she was enabled to go about without pain.

Further illustrations are found in the relatively numerous cases one sees in private and dispensary practice which are rendered much worse by the operation. In some of these cases the vaginal vault is found tense and firm, the uterus is fixed in some malposition, and the whole lower abdomen is exquisitely tender to the touch, so that a satisfactory bimanual examination is impossible. The woman suffers from pain all over the pelvis, has no ambition, tires easily, and is generally very wretched. In a case presenting these characters that I saw recently in dispensary practice, the operation had been done by a very careful, conscientious, and skilful operator. On mentioning the case to him he expressed great surprise, as the patient had had a smooth and excellent convalescence. How many cases reported conscientiously as successful, with smooth recoveries, turn up afterward at some dispensary or in some doctor's office with just such a history as the foregoing! During the current year at the Outdoor Department of the Woman's Hospital I have seen four cases of this kind, operated upon by different surgeons, all of eminence and undoubted skill.

All this may sound like an old and oft-repeated tale, but in the burden of truth contained in it do we find the *raison d'être* of a method like pelvic massage, which, it must be conceded, is not easily learned, and which calls for difficult labor on the part of the operator.

It will be gathered from what has gone before that I do not present the method as a *panacea* for all the ills woman's generative organs are heir to. But what I *do* claim for it is that it is the ideal method for the class of cases under consideration. This claim does not assume that it will *cure* every case with lesions resulting from a prior inflammation. But in the cases that it does effect a cure it is an ideal one, in which the organs and

surrounding tissues are restored to their normal healthy state. There is no mutilation, or fixing of organs in positions which are fully as pathological as those existing prior to the surgical procedure. In my experience I have been able to effect a cure—by which I mean an *ideal* cure—in about fifty per cent. Of the fifteen cases I report in this paper, seven (46.60 per cent) were cured; six (forty per cent) were symptomatically cured, three of these with the aid of pessaries; and two (three per cent) were made no better. In these two cases is included the case that discontinued treatment before sufficient time was afforded to determine whether the method would have ultimately succeeded. Of course I recognize the fact that the data I present are insufficient to warrant any general deductions, but, as they correspond in the main with those of others who have had a larger experience, they carry considerable weight. Ziegenspieck⁵⁹ reports twenty-two cases with sixteen cures, or about seventy-three per cent. Profanter³⁵ published fourteen cases treated under Schultze's supervision by Brandt during his stay at Jena. Of these, ten were cured, or seventy-one per cent, and four, or twenty-nine per cent, were symptomatically cured and the local lesions almost removed. I could quote many others who have had almost equally good results.

The cases put down by me as symptomatically cured deserve further consideration. The patients were more than relieved of their symptoms. The adhesions were loosened and stretched so that the uterus and ovaries were freely movable, and, if found necessary, a pessary could be worn with comfort and without the fear of inflicting harm. This is an important desideratum, and to the lack of fully appreciating its worth must be attributed the discredit which often attaches to the use of pessaries. I have several times removed a pessary from the vagina of a woman in whom it was a criminal act to have introduced one. The uterus might have been adherent posteriorly, the ovaries swollen, tender, and fixed, one in Douglas' space and the other to the side of the pelvis far forward, and still a pessary was crowded into the vagina. Everything was put on the stretch. The ovaries were pressed against by the bars of the instrument, and with every step or movement the woman made she ran the danger of calling into existence an acute inflammatory process. But when the uterus is freed from its adhesions, and the ovaries replaced in their normal positions in the sides of the pelvis, and

all tenderness of the pelvic tissues removed, a pessary may prove a very valuable aid and may ultimately bring about a permanent cure of a uterine displacement. Gynecologists with strong surgical tendencies cannot stigmatize this aid as "tinkering," for it is one they themselves bring into requisition after surgical procedures for the cure of dislocations of the uterus.

A word about endometritis as a complication of the cases in which pelvic massage is indicated. Some (Dührssen and others) are in the habit of curetting the uterus before commencing with the treatment. My course has been the opposite. It was only when the uterine discharge was due to gonorrheal infection, and persisted after the perimetritic bands and adhesions were removed and the uterus restored to its normal mobility, that I deemed it necessary to apply a special treatment for the endometritis. By adopting this course it is remarkable in how few cases I found it necessary to resort to the special treatment. For, in the majority of cases, as soon as the local lesions were improved the discharge ceased, thus showing that apparently T. A. Emmet's teachings hold good in a fair percentage of cases. I am not now concerned with the question whether endometritis is always caused by para- and perimetritis and their sequelæ, or whether it is the cause of these affections. I merely state the result of my clinical observations, and, until pelvic pathology rests on a more certain foundation than at present, speculation on these points is unprofitable. As in most things, probably in this also, the future will prove that the truth lies midway between the two extremes.

The following cases have been selected from a large number as typical of the results I have had with pelvic massage.

CASE I. *Retroflexion with firm Perimetritic Adhesions; Left Oöphoritis.* (Abstracted from *Medical Record*, July 11th, 1891.)—S. II., æt. 30, married fifteen months. Seen January 6th, 1891, at Mount Sinai Dispensary. Had pelvic pain, dyspareunia, and dysmenorrhea ever since miscarriage ten months before. Had been treated at various dispensaries for some time without any marked relief. Treated for two weeks at Mount Sinai Dispensary by pelveo-abdominal galvanism without success.

Diagnosis.—Retroflexion with firm perimetritic adhesions of fundus posteriorly and of cervix anteriorly. Left oöphoritis. After three *séances* of pelvic massage, menses set in at the usual period *and were painless*. After four more *séances* uterus was

quite movable and could readily be brought to the normal position.

CASE II. *Retroversion with Fixation; Double Oöphoritis; Right Salpingitis.* (Abstracted from *Medical Record*, July 11th, 1891.)—L. M., æt. 25, married six years, one child 5 years of age. Suffering for three years with pelvic pain, dysmenorrhea, frequent and painful micturition, headache, nervousness, and inability to do her housework.

Diagnosis.—Retroversion with fixation, double oöphoritis, right salpingitis. Came under treatment February 12th, 1891. On February 18th all pain had disappeared. March 1st, period set in without pain. Is now able to attend to her household duties. On April 11th, after a severe drenching, had a return of some of her symptoms, which disappeared after a few applications of massage. Right tube is about half the size it was when

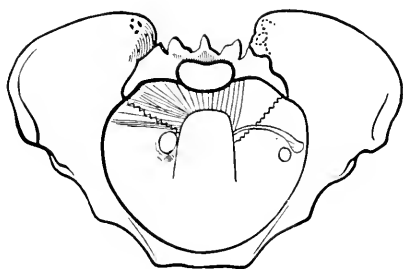


FIG. 1.

first came under treatment. Saw the patient lately; said she performed all her work and was quite comfortable; had little or no pain. Did not have an opportunity to examine her.

CASE III. *Retroversion; Adhesions posteriorly and between Cervix and Anterior Wall; Posterior Perimetritis; Fixation and Enlargement of Right Ovary.*—B. P., æt. 37 years, came under treatment January 27th, 1891. Married fourteen years; has one child 13 years old. Since birth of child has suffered with pain in the back and in both groins. Menstruation is profuse and very painful, the pain continuing during the whole period. Frequent and painful micturition; has to urinate every hour or two. General health very much run down; has had to give up her vocation of nursing, on account of her health.

Uterus is in complete retroversion; fundus is large and lies low down in Douglas' cul-de-sac; it is firmly bound by a broad band

passing to the sacrum; cervix is adherent anteriorly; utero-sacral ligaments very tense and shortened; some thickening of the right broad ligament. Right ovary, double its normal size, is adherent to the side of the uterus at the level of the internal os; left ovary normal in size and in mobility (see Fig. 1).

Patient subjected to pelvic massage every other day.

March 5th: Quite free from pain. Uterus can be brought up to beyond the promontory. Right ovary much smaller and is no longer adherent to the uterus.

April 10th: Painless menses. Patient continues to be free from pain. Uterus is quite movable and is easily anteverted; kept in anteversion in the intervals of the *séances* by ichthyol tampons. Right ovary quite movable and seems to be of normal size.

May 10th: Patient well in every respect. Uterus retains

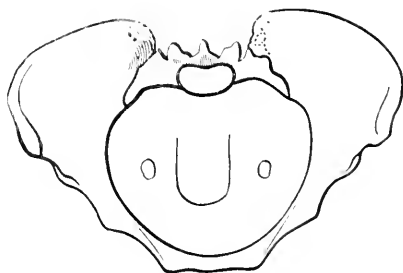


FIG. 2.

normal position without the tampons. No thickening of the right broad ligament (see Fig. 2).

CASE IV. *Restricted Mobility of Uterus; Thickening and Shortening of Utero-sacral Ligaments; Fixation of Left Ovary to Side of Pelvis.*—L. S., at. 29, married eight years. Came under treatment February 1st, 1891. Had one child 7 years old. Had never had a miscarriage.

About four and one-half years before began to suffer with pain in the back and from a feeling, when going upstairs, as if the whole abdominal contents were coming down. Had pain in the left groin almost constantly. Her menses were regular, moderate in amount, and continued for three days, during which her backache was much more severe. She also suffered from headache and a feeling of numbness in both thighs. Her digestion was poor. She had a constant feeling of weakness; was

prone to attacks of palpitation, which might come on even while in bed. Had been attending the Outdoor Department of the Woman's Hospital off and on for four years, receiving only temporary relief. On examination the uterus was found rather low down, but in anteversion. Its mobility was very much restricted, owing to thickening and shortening of the utero-sacral ligaments. Right ovary was moderately swollen, very tender, and pretty firmly fixed to the left side of the pelvis (see Fig. 3). She was submitted to pelvic massage every other day until February 23d, and received ten applications in all. Already after the third *séance* the pain in the back had permanently disappeared, but the pain in the left groin continued off and on for some time after. March 20th: Had been free from all pain since the last date until two days ago, when, after unusual exertion, the pain in the left groin returned. Massage was again applied,

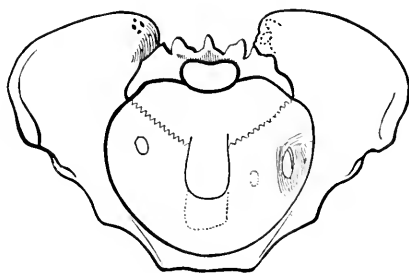


FIG. 3.

and within a week the pain in the left groin vanished. At this time the uterus was freely movable and could easily be brought forward to the abdominal wall. The left ovary was about the normal size, not at all tender, and remained about midway between the uterus and the side of the pelvis (see dotted outlines in Fig. 3). The patient remained under observation until July 19th, 1892, and the condition of the pelvic organs continued about the same as just noted, but the palpitation of the heart still annoyed her from time to time. I could detect no organic disease of the organ, and could only attribute the functional disturbance to what is known as an "irritable heart."

CASE V. *Retrodismplacement of the Uterus, with Posterior Fixation; Thickening of both Broad Ligaments; Thickening of Left Tube; Swelling and Fixation of Left Ovary.*—T. T., æt. 26 years, a very thin and delicate-looking girl, had been my

patient, at various times for the past three years, for debility and general ill-health. She was a dressmaker, had to work hard to earn a livelihood, and three or four times a year would be so run down as to be compelled to give up work for a few weeks and put herself under treatment, which consisted of rest and good food. I had not seen her for nearly a year, when she again presented herself for treatment on January 2d, 1891. Five months before that she had married, and ever since then had pain in the back and pain in the left groin. Her periods were regular, but rather profuse, and were attended with severe bearing-down pains and cramp-like sensations in the abdomen. She had considerable leucorrhea, and her general condition was



FIG. 4.

miserable in the extreme. She looked like a person in the last stage of consumption, but a careful examination could detect no pulmonary affection. Heart, liver, and spleen were also found normal. On examining the pelvic contents the uterus was found retroplaced and rather firmly fixed by a wide band passing to the sacrum. Douglas' space was shallow and tender to the touch. Both broad ligaments were considerably thickened. The left tube was about double its normal size, and the corresponding ovary was the size of a walnut and fixed to the left side of the posterior segment of the pelvis (see Figs. 4 and 5). The patient was put on tonics and subjected to pelvic massage three times a week.

January 28th: Very much improved in every respect. Has no pain anywhere. Uterus freely movable in every direction, but still lies in the posterior segment of the pelvis. No thickening detected in either broad ligament. Left tube still seems thicker than normal. Left ovary freely movable and about half of the size it was when first subjected to pelvic massage (Fig. 6).

November 30th: Patient came to-day, saying she had been very well and had passed thirteen days beyond her expected period. The uterus was found slightly enlarged and lying in retroposition, but freely movable.

She went on to full term, and was delivered of a healthy female child July 25th, 1892. Her puerperium was smooth, but I kept her in bed until the fourteenth day. She was about for two weeks, feeling quite well, when she was seized with pain

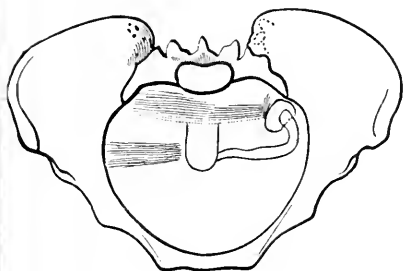


FIG. 5.

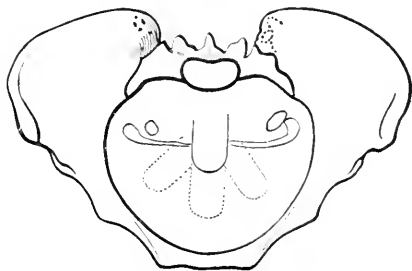


FIG. 6.

and fever, and developed a perimetritis, from which she gradually recovered. The discussion of the cause and nature of this attack is not within the province of this report.

CASE VI. *Prolapsus of Uterus of First Degree; Thickening of Left Tube.*—C. M., æt. 33 years, came under treatment November 26th, 1890. She had been married eleven years and had four labors, the last labor, ten months before, being attended with triplets. After that she had two miscarriages, last one about four months ago. Since her last miscarriage she has suffered from a constant pain across the hypogastrium and from a severe burning sensation in the vagina. Her menses have become very profuse and are attended for the first two days with very great pain. In the intervals of menstruation she has a profuse greenish-yellow discharge. On examination the uterus is found low down, so that the os almost appears at the vulva. It is in anteversion, very large, but freely movable. Left

tube is slightly thickened. No disease other than this detected in the adnexa. Patient subjected to daily massage.

December 25th : Has just passed her period, which was moderate in amount and quite free from pain.

January 12th, 1891 : Patient has been free from pain and from the burning sensation in the vagina for over a fortnight. Uterus lies in anteversion and is about the normal size. The os is felt from two and one-half to three inches beyond the vaginal entrance.

May 10th : Saw the patient again to-day. Found uterus of normal size and in about the same position as last noted. Patient has been quite free from any pelvic symptoms.



FIG. 7.



FIG. 7a

CASE VII. Retrodisplacement of Uterus ; Shortening of Utero-sacral Ligaments.—K. A., æt. 29 years, came to me for treatment on February 4th, 1891. Her history, briefly, was as follows: She had been married for five years. Shortly after marriage she had a miscarriage, and ever since that suffered from very severe pain in the back and from almost constant pain in the left groin. The slightest exertion tired her. When walking she felt a heavy weight in the abdomen and the pain in the groin became more severe. Latterly her menstruation grew to be very profuse ; was accompanied by a great deal of pain and the passage of several clots. She was growing quite despondent and appeared dull and listless. An examination showed the uterus

to be anteflexed, lying quite high in the pelvis and quite close to sacrum. Both utero-sacral ligaments were tense, cord-like, and quite tender. There was some thickening of the left broad ligament (Fig. 7).

April 25th: Patient has been treated by pelvic massage from three to four times a week since February 4th, excepting an interruption of three weeks in March. Her symptoms have varied from time to time, but marked improvement was manifest from the outset. For the past three weeks she has been free from pain and has been feeling quite well. Her last period was normal in amount and *quite painless*. The uterus is freely movable, lies in fairly good position, and the utero-sacral ligaments appear quite normal (Fig. 7a). After this I lost sight of the patient.

CASE VIII. *Retroversion, with Adhesion of Cervix anteriorly; Posterior and Lateral Perimetritis; Fixation of Left Ovary in Douglas' Space*.—M. A., æt. 24 years, married eighteen months, had one child nine months ago. The labor was difficult, but no instruments were used. On the third day after labor she had fever which continued for some days. She got up on the ninth day, but had to take to her bed five days later on account of pain, chills, and fever. Kept her bed this time for over three weeks, and could not leave her room for five weeks more. Ever since suffers from pain in the left groin and across the hypogastrium. Every few days there is an exacerbation of pain, necessitating her stay in bed for one or two days. Her menstruation is very profuse, lasting from ten to twelve days, and is attended with very much pain. Profuse leucorrhea and frequent but not painful micturition. Has never, to her knowledge, had a discharge of pus from the vagina or rectum. She first consulted me November 17th, 1891. On examination the uterus was found rather large, in complete retroversion, the cervix pointing toward the pubes. It was easily brought into anteversion, but in this position the Douglas' folds were felt to be very tense. Left ovary was considerably enlarged and fixed in Douglas' space. There was considerable thickening of the right broad ligament (Fig. 8). Pelvic massage to be applied daily; uterus to be kept forward, in the intervals, by glycerin tampons.

November 23d: Pain entirely gone. Is enabled to attend to her household duties, which she has not been able to do since

the birth of her child. Uterus retains the position of anteversion. Left ovary seems to be about the same size, but can be moved considerably.

December 27th: Last two periods have been normal in amount and accompanied by slight pain only during the first day. Has been quite well in every respect. No leucorrhea. Uterus in anteversion. Left ovary, about the normal size, is very freely movable, but has a tendency to prolapse back into Douglas' space. No adhesions or thickening to be detected anywhere in the pelvis (Fig. 9).

November 14th, 1892: Called on patient to-day. She was hard at work washing. Said she had been quite well since last seen by me.

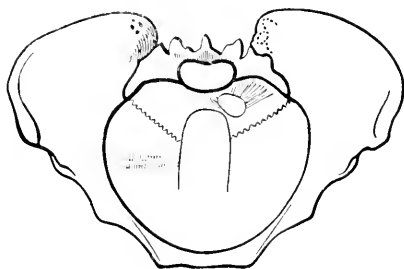


FIG. 8.



FIG. 9.

CASE IX. *Retroflexion; Subinvolution; General Perimetritis*.—C. A., æt. 20 years, came to me November 19th, 1891. She lived in the same house as the last patient and had a somewhat similar history. She had been married nineteen months and had one child 8 months old. Her labor was difficult, but not instrumental, and on the fifth day of the puerperium she was seized with a chill, which was followed by fever, but not by any great degree of pain. She got up on the tenth day, though feeling very feeble. As far as she is aware, she had no fever after this, but in a short time began to suffer with pain in the left iliac region. This pain was constant and at times very severe. Occasionally she had pain in the right iliac region. There was an abundant greenish-yellow discharge from the vagina, but the menses had not reappeared. She was still nursing her baby. On examination the vaginal vault was found to be shallow and tense, and only a short cervix, with rather a deep bilateral laceration, could be felt projecting beyond the vault. It was extremely difficult, at first, to outline the body

of the uterus, so soft was it; but after applying massage for a few minutes it could be felt to grow hard under the hand and become definitely outlined; continuing with the massage, the uterus could be felt to undergo distinct contraction and to grow appreciably shorter and thicker. It was retroflexed. The uterus was adherent posteriorly by extensive loose adhesions and could not be raised beyond the promontory. The right ovary was normal in size and in position. The left ovary was indistinctly felt in the left side of the pelvis within a mass of thickened tissues, presumably the left ligamentum latum (Fig. 10). Patient subjected to daily pelvic massage.

November 26th: Body of uterus more distinct and somewhat more movable, but cannot as yet be brought into anteversion. Subjective symptoms about the same.

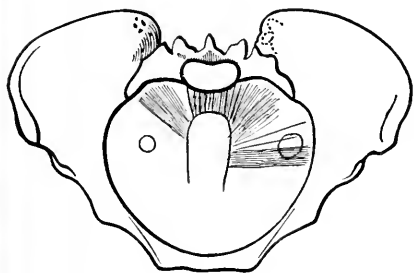


FIG. 10.

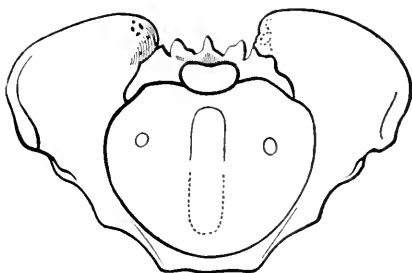


FIG. 11.

November 30th: Succeeded in anteverting the uterus for the first time.

December 15th: Patient free from pain and has lost her vaginal discharge. Uterus readily anteverted, but falls back into retroflexion almost immediately afterward; tried to keep it in anteversion during the past week by various kinds of pessaries, but failed. All other pelvic lesions have disappeared (Fig. 11). As patient was feeling quite well, advised the discontinuance of any kind of treatment.

April 24th, 1892: Patient called to-day and stated that she had remained quite well and that she had passed her expected period for fourteen days. Uterus was found in retroflexion and is readily anteverted; Hegar's sign is quite distinct. Introduced a Smith pessary with the hope of keeping the uterus forward.

June 5th: Uterus in anteversion and about the size of a coconut. Removed pessary.

November 14th: Called on patient to-day. Found her at the washtub and in the enjoyment of good health. Expects to be confined in a month.

CASE X. *Retrodisplacement of Uterus; Inflammation of Utero-sacral Ligaments*.—K. M., æt. 23 years, single, had been treated for over a year at a well-known gynecological service before coming to me on May 12th, 1892. In addition to dysmenorrhea she suffered from a severe backache, which was worse at night, and which gave her the sensation as if "a ball of fire" were lying over the lower part of the sacrum. In consequence of this pain her nights were disturbed and she could not sleep more than a few hours each night. Her general health was beginning to suffer, and she was growing despondent through fear of being compelled to give up the vocation by which she earned her living.

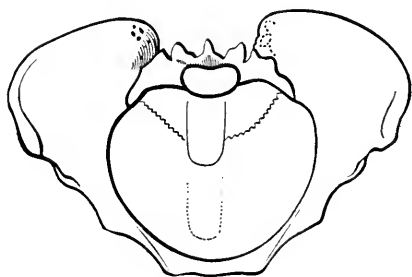


FIG. 12.

An examination revealed a long, narrow cervix with an acutely anteflexed fundus. The uterus lay far backward. Both utero-sacral ligaments were very much thickened and were very sensitive. The most gentle attempt to draw the uterus forward with the finger in the vagina caused considerable pain in the back. No appreciable disease of the adnexa could be detected (Fig. 12).

May 18th: Patient has had daily pelvic massage (six *séances*). She no longer suffers from pain in the back; can now sleep the night through, and as a result of this her general health is improving. Uterus can now be moved in all directions and brought to the symphysis pubis (see dotted outline, Fig. 12) without causing her any pain.

November 1st: Saw patient again to-day. Pain in the back has not recurred. Her general health is good. Mobility of uterus unimpaired.

(To be concluded.)

SYMPHYSIOTOMY.

A SUCCESSFUL CASE. A SUGGESTION.

BY

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THE ancient history of symphysiotomy need not be rewritten. It is interesting in that it presents the reverse of what usually happens with new ideas in science. Its invention was hailed as a great advance in science, and laudation and honors were showered on the inventor. After a short reign the verdict was reversed. Harvey, Jenner, Wolff, Lister were regarded as dangerous innovators, but fought their way into universal recognition. Sigault was received with open arms by the profession, and after a short reign his operation fell into such disrepute that his very name was execrated by Baudelocque. One cannot wonder that, with bad pelvimetry, imperfect knowledge of pelvic deformities, and the sepsis which characterized all the surgery of the eighteenth century, the operation could not hold its own. From 1777 to 1804 there were forty operations; fifteen women and twenty-eight children died. The results of the second forty were about the same.¹ From 1858 to 1865 there are no recorded operations.¹ The paper of Dr. R. P. Harris read before the last meeting of the American Gynecological Society, and published in THE AMERICAN JOURNAL OF OBSTETRICS, October, 1892, leaves little to be said in regard to the modern history of the operation. Up to this time the attention of American obstetricians seems not to have been attracted to the revival which had been spreading in Europe since 1865. Dr. Harris' table, showing forty-four operations from January, 1886, to July, 1892, by various operators, with one maternal death, three still-born children, and two children dying respectively at twelve and seventy-two hours, made a profound impression on the American profession. I will not

¹ Harris.

detain you by repeating details, but refer you to Dr. Harris' original paper and to the interesting one of Prof. Hirst, of the University of Pennsylvania.¹ Dr. Charles Jewett, of Brooklyn, was the first American operator. He operated on September 30th, 1892, under the following circumstances:² Healthy, robust primipara, age 22. In labor at 1 A.M. Head at vulva at 10. Forceps impossible. Bischiatic diameter about three inches. Antiseptic symphysiotomy. Head shelled out by fingers in rectum. Child died in twenty-four hours from effect of long-continued pressure. Recovery uneventful to date of writing. Fetal head: occipito-mental, $6\frac{1}{2}$ inches; occipito-frontal, $5\frac{1}{2}$ inches; biparietal, $3\frac{1}{2}$ inches; circumference, $13\frac{1}{2}$ inches.

Dr. Hirst operated October 2d, 1892.³ Primipara, 19 years of age. Pelvic measurements: spinæ ilii, 25 centimetres; cristæ ilii, 27 centimetres; bitrochanteric, $30\frac{1}{2}$ centimetres; conjugata externa 18 centimetres, interna $9\frac{1}{2}$ centimetres; conjugata vera, $7\frac{3}{4}$ centimetres. Antiseptic symphysiotomy. Forceps. Child lived. Head: bitemporal, $7\frac{1}{2}$ centimetres; biparietal, 9 centimetres; occipito-frontal, 12 centimetres; occipito-mental, $13\frac{1}{2}$ centimetres; circumference, 34 centimetres. Mother recovered fully.

Dr. Broomall operated October 7th, 1892. I am indebted to Dr. Anna M. Fullerton, of the Philadelphia Woman's Hospital, for the following account of the case: "Mrs. P., æt. 30, colored, multipara. Height, four feet eight inches; number of previous births, seven. Pelvic measurements: Distance between spines of the ilium, 23 centimetres; distance between crests of the ilium, 24 centimetres; conjugata externa, 19 centimetres; conjugata vera, $8\frac{1}{4}$ centimetres (probably less). A generally contracted, rachitic pelvis. Marks of rachitis in curvature of bones of skeleton generally, etc. Abdomen markedly pendulous. Child-bearing history: Early labors easy, increasing difficulty in later labors. The last labor, one of breech presentation, was very difficult; child lost. Present labor began with premature rupture of membranes at 2 P.M. October 6th, 1892. No dilatation of os; head of child presenting and movable above pelvic brim. Labor continued, with active uterine contractions, for twenty-four hours. Dilatation progressed somewhat slowly; the os, however,

¹ Medical News, October 15th, 1892.

² New York Jour. of Gyn. and Obstet., November, 1892.

³ Medical News, October 15th, 1892.

became dilatable. Head still perfectly movable above inlet: no attempt at engagement. Fetal heart slowed; sounds muffled. Mother showed signs of exhaustion in increased rapidity of pulse and rise of temperature (pulse 140, temperature 99.8°), frequent vomiting, etc. Inertia of uterus set in. Symphysiotomy was done October 7th, about twenty-four hours after onset of labor, after thorough antiseptic preparations. Galbiati's sickle-shaped knife was employed. Upon separation of the symphysis the pubic bones sprang apart between four and five centimetres. The fetal head descended at once into the pelvis. The tissues being soft, sufficient dilatation was obtained by manual assistance for the application of forceps, and the child was delivered in about ten minutes without difficulty. (It cried lustily shortly after it was born, there being no asphyxia.) Wound closed with silk-sutures and dressed antiseptically. Adhesive strips and a stout muslin bandage were used for fixation of the pelvis. The lying-in was without event. The temperature and pulse remained normal from within a short time after delivery. Patient not permitted to walk until beginning of fifth week. Locomotion perfect; union complete. Measurements of child's head: occipito-mental, $13\frac{1}{2}$ centimetres; occipito-frontal, 12 centimetres; biparietal, $9\frac{1}{2}$ centimetres; bitemporal, $8\frac{1}{2}$ centimetres. Head well ossified: sutures close: fontanelles small. Weight of child, 2,780 grammes; length of child, 45 centimetres; sex, female. Mother and child in excellent condition up to date."

I operated at the Free Lying-in Hospital of the University of Maryland on October 25th, 1892. The patient was a rachitic negress, four feet six inches high, 17 years old. Pelvic measurements: spinæ ilii, $8\frac{1}{4}$ inches; cristæ ilii, $7\frac{3}{4}$ inches; bitrochanteric, $9\frac{1}{2}$ inches; conjugata externa, 6 inches; conjugata vera, $2\frac{3}{4}$ inches. Labor began in the morning of the 24th and continued during the day. The waters broke during the afternoon. I saw the patient at 9 P.M. Os barely admitted two fingers; head large and no signs of engagement; both fetal and maternal circulation good; general condition of patient satisfactory. Concluded to wait for greater dilatation, and determined to operate next morning. Ordered pubes shaved and other preparations for the operation to be made. Operated at 9:30 A.M. Chloroform anesthesia. Os still small, but most of the amniotic fluid had escaped, and the fetus was suffering from pressure, as

evinced by pulse, which was becoming more rapid and irregular. The fetal head was obviously large and there was no possibility of engagement. I first dilated the os uteri until four fingers would enter, having first evacuated the bladder. I then incised the soft tissues down to the symphysis, and separated the attachments of the recti for half an inch on each side. Passing my finger down behind the symphysis until it projected below, I (not then possessing the Galbiati knife) tried to follow it with a large curved, grooved director. The projecting belly prevented this. I then incised the soft parts from the outside below, down to my finger tips, and tried to pass the director from below upward, but without success. Finally, using the director as a guide for the lower part of the symphysis, and my finger for the upper, I passed an ordinary curved, probe-pointed bistoury behind the joint and severed the cartilage. The separation, when the incision was first made, was about one-half or three-quarters of an inch. Applying Simpson's modifications of Tarnier's forceps above the brim, I delivered slowly, dilatation being very imperfect. The pelvis was supported firmly at the sides during delivery. The child was easily extracted. I was amazed at the pubic separation. I paused when it was at its highest point and found it two and seven-eighths inches. The child was alive, and I passed it over to my assistant, Dr. K. B. Batchelor. Upon inspection I found that, notwithstanding my caution, I had lacerated the cervix into the vaginal vault, the perineum to the verge of the anus, and the anterior vaginal wall into the operation wound. These lacerations were at once repaired with catgut, save the anterior vaginal wall, which was so close to the urethra that it was deemed wise to leave it. The wound of the symphysis was sewed with gut, the deeper stitches including the anterior and superior pubic ligament. The wound was completely sutured, no drainage being used. The surface was powdered with aristol and dressed with iodoform gauze. Broad adhesive strips encircled the pelvis and were covered by a firmly applied bandage. The woman was in a fair condition after the operation, but was a little slow in recovering from the anesthesia. The catheter was used always when she desired to urinate. The puerperium was uneventful. On the evening of the second day temperature 101° ; afterward, for ten days, the evening temperature was about 100° , the morning about 99° . Little or no complaint of pain at wound. No complaint referred to sacro-iliac joints.

Pain and local tenderness at right knee, probably from position in which it was held during the operation. Appetite good and general condition excellent during the whole puerperium. Catheterization was done aseptically by the house physician, and no vesical irritation followed. Bowels moved on the fourth day by enema. On the ninth day the patient, being able to handle herself well, was allowed to sit up in bed, which she did easily without aid. On the eleventh day she sat up a little while in a chair. On the twelfth day she could walk well and firmly; movement was, however, discouraged. There was no trouble at all except a little slowness in healing of the anterior vaginal wound. Within a month the patient walked up and down stairs, and at the present time walks all over the hospital, and walks as firmly as before the operation.

The child died on the third day, the death being due to pressure which had occurred previous to the delivery. The death was due doubtless to the fact that the operation was postponed for the night. There was some meningeal hemorrhage, some superficial extravasation of blood. There was a clot at the base of the skull and extravasation in the spinal canal in the dorsal region. The lungs were filled with hemorrhagic infarctions. The head of the child measured: occipito-mental, $5\frac{3}{4}$ inches; occipito-frontal, $4\frac{1}{16}$ inches; suboccipito-bregmatic, $4\frac{3}{8}$ inches; biparietal, 4 inches; bitemporal, 3 inches.

I show to you here the Galbiati knife, which I have procured since the operation. Dr. Hirst attempted to do the operation with an ordinary bistoury, but afterward abandoned it for the Galbiati knife, which aided him very much in the operation and of which he speaks very highly. I think one can only appreciate the importance of this instrument if he has attempted to do the operation without it. I am quite convinced, in the light of the experience which I had in this operation, that this knife would have been a very great aid.

It seems to me that the revival of symphysiotomy is one of the greatest advances in recent times; it strikes at the point where we found the greatest weakness. Every conscientious obstetrician aims to do everything possible to avoid craniotomy upon the living child, and it is just in these cases, where the true conjugate comes above two and one-half inches, that we have to elect between craniotomy, Cesarean section, and symphysiotomy. The results of the Cesarean section in modern

times are particularly brilliant, considering the amount of danger incurred. But under the most favorable circumstances there is an amount of mortality which is very grave, and which would naturally make one hesitate to risk the life of the mother for the sake of saving that of the child. I am fully convinced that a great many people who very earnestly and enthusiastically advocate Cesarean section as the elective operation, would be very loath to have the same operation performed on persons of their own connection when the alternative presented itself in that form. The use of symphysiotomy strikes at this point—cases which come under the head of Cesarean section with relative indication. When one reflects that in the forty-four cases recorded by Dr. Harris in his paper there is only one maternal death, and that seems to have been in a woman whose condition at the time of operation was practically septic and might have ended fatally under any circumstances, the saving of maternal lives is certainly a point that would attract the attention and the approval of everybody interested in the subject of obstetrics. Naturally the great point in its success in modern times, as compared with its early history, is the antiseptic precautions.

In reflecting over the operation an idea occurred to me, which is the suggestion I have to make. The aim of obstetricians to prevent the operation of craniotomy on the living child is applied mainly to the cases which we have already considered. But there are certain other cases in which this operation becomes more imperative even than it does in contracted pelves. These are cases in which, from a bad presentation of the head, delivery becomes impossible at a stage in which it would be equally impossible to do a Cesarean section. These cases are represented by face presentation, posterior chin. If the chin can be made to rotate to the front by any device, thus transforming it into an anterior face presentation, delivery is not particularly difficult; but where the chin fails to rotate to the front, and where the devices ordinarily employed are unsuccessful, I think it has heretofore been thought best to follow out the views of Penrose and many others—that the performance of craniotomy should be carried out at once. When there is a fixed and jammed posterior chin there is no sense in waiting. It seems to me that the operation of symphysiotomy could be applied to just such a class of cases, whether the chin or occiput was posterior and the delivery impossible. It seems to me that we could thereby relieve the

woman of danger and deliver alive the child, which we would otherwise have to kill.

I have examined this matter with the fetal head and pelvis as ordinarily used in obstetrical instruction, and which I bring now before you. Here is a head which is in a position of face presentation, chin posterior, and it is seen that delivery in this position is impossible. If you can rotate it, well and good; but you simply cannot do it except in a very small number of cases. You cannot do a Cesarean section on account of the position of the head, but you can do a symphysiotomy; and if the symphysiotomy is done, you can get enough room to rotate the occipitomenal diameter and produce flexion of the head, and with such flexion you bring the occiput down to the pubic arch, and at that point, of course, the direction of the mother's forces is changed and you have a delivery of the occiput in the ordinary way. I think this is perfectly feasible, and is demonstrated with the pelvic bones and fetal head in place.

In order to still further verify the matter (and I think we should always, so far as possible, deal with dead subjects before we proceed to work upon the living person) I took a fetus of large size, and a pelvis, with the soft parts attached, of comparatively small size. The proportions of the fetus and of the woman were such that without a considerable lubrication and preparation it was impossible to introduce the head in the pelvis in any of the so-called normal positions. But with lubrication we were enabled to produce the usual movements of delivery in the normal way, the head filling up the pelvis completely. Having demonstrated in that way the comparative size of pelvis and of fetal head, we then introduced the fetal head into the pelvis, produced a posterior rotation of the chin, and put on forceps and attempted to deliver, and found it utterly impossible. I then performed symphysiotomy, and I was really astounded at the ease with which, after the pubic bones had separated one and a half inches (estimated), we could, by pressing over the symphysis, produce a descent of the occiput; or, in other words, produce flexion of the head upon the trunk, and bring the occiput under the pubic arch, and deliver by extension in the usual way. The experiment on the cadaver in this way was so much like the experiment on the living child and woman that I was convinced, at the end of the experiment, that the operation was perfectly feasible. Whether this will come into practice or not it remains

for the future to show; but, so far as I am individually concerned, I shall certainly make this attempt on the first case presenting. If this does succeed, it seems to me that it will very nearly take away the last peg of support from craniotomy on the living child, either for bad presentation or deformity. I hope this will result in the diminution of fetal mortality which follows bad presentation.

In a case where the occiput is posterior, and where the delivery of the child with forceps is accompanied by a great amount of violence which frequently results in the injury and death of the child, this operation may be indicated.

Statistics are remarkable both as to the safety of the woman and the healing of the wound. The woman is subjected to very little risk. The number of operations which have been performed during the present year the world over I present in a communication which Dr. Harris was good enough to send me last week. There have been twenty-six operations in all. Six of these are by Italian operators, eleven by French, four by German, one by Austrian, and four by American operators; the one which I have the pleasure to report being the last of the list. In this list there are no deaths of the mother. In the American cases, the child in Dr. Jewett's case died in twenty-four hours from the results of pressure, and in my own case the same result occurred at the end of the third day. In both of these cases, had the operation been more promptly performed, both children would doubtless be living. Both children were born alive, and the fatality was not due in the least degree to the operation. The amount of violence done to the fetus is a great deal less than in an ordinarily difficult forceps case, because the points of resistance are removed.

I append Dr. Harris' list of operations in 1892 up to date:*

CASES OF 1892, AS SENT TO ME THUS FAR:

Morisani, Naples	3	} I., 6.
Novi, Naples.	1	
Caruso, Naples	1	
Truzzi, Novara.....	1	
Pinard, Paris.....	8	} F., 11.
Porak, Paris.....	2	
Tarnier, Paris.....	1	

* Since the receipt of this paper successful operations have been done in America by Springle, of Montreal (Mont. Med. Jour., January, 1893). child also recovering, and by Garrigues, of New York (unpublished). A fatal case (unpublished) has also occurred in New York in the hands of a very skilled operator.—ED.

Leopold, Dresden.....	2	} G., 4.
Freund, Strassburg.....	1	
Zweifel, Leipzig.....	1	
Velits, Pressburg, Austria.....	1	A., 1.
Jewett, Brooklyn.....	1	} U. S., 4.
Hirst, Philadelphia.....	1	
Broomall, Philadelphia.....	1	
Michael, Baltimore.....	1	
26		

15 operators, 5 countries, no death.

R. P. H.

201 W. FRANKLIN STREET.

ACCIDENTAL HEMORRHAGE.¹

BY

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Instructor in Obstetrics, New York Polyclinic.

ACCIDENTAL hemorrhage is a flooding due to the premature separation of the normally implanted placenta, and is considered to be one of the gravest complications met with in the lying-in chamber. The obstetrical text books devote but a brief space to its discussion, and whatever knowledge we possess is for the most part scattered through the literature in reported cases and in more or less exhaustive papers. As every contribution will aid us in combating this formidable disease, I feel justified in reporting a case which has lately come under my notice and which presents many interesting features. In discussing the etiology, symptoms, and treatment I shall endeavor to collect the most important facts demonstrated by other authors, and thus present a somewhat complete picture of this disease.

A Ipara, æt. 24, was kindly referred to me by my friend Dr. Louis Waldstein. The patient, a nervous little woman, suffered from a mild degree of uterine prolapse dating from her first confinement, in which she sustained an extensive laceration of the perineum. The prolapsed organ was kept in place with a ring pessary until the fourth month of gestation. Besides the prolapse she has an enlargement of the thyroid gland. The gland is hard and about the size of a lemon. A mild degree of exoph-

¹ Read before the Section on Obstetrics of the New York Academy of Medicine, December 22d, 1892.

thalmos is also present. The heart, lungs, and kidneys are normal. The goître was first observed during her first pregnancy, and subsided after she weaned her child (fourth month). It again made its appearance while carrying her last baby, and is yet quite noticeable. Her mother, one sister, and other female relatives are also afflicted with Graves' disease, proving its marked hereditary tendencies—a fact pointed out by me before.¹

Except the aforementioned disorders, the pregnancy advanced normally. One day, when nearly at full term, having frequently stooped down while engaged in her household duties and resting herself upon a chair, she noticed that she was flooding. Upon arriving I found her in bed and losing considerable blood from the vagina. The face was blanched, the pulse rapid and small, and she was exceedingly restless and nervous. The abdomen was tender, especially on the left side where a round projection could clearly be distinguished. Labor pains were absent. The heart sounds of the fetus, which presented by the vertex, were indistinct and accelerated. Making a vaginal examination, my suspicion that a premature detachment of the placenta had taken place was confirmed. The cervix was not dilated, but, pushing my finger through the os, the finger came in direct contact with the presenting head, no placental tissue intervening. The problem which now presented itself to me was a very difficult one. The patient was flooding and in danger of bleeding to death. The seat of the hemorrhage was inaccessible. Rapid delivery, if possible at all, would necessarily increase the existing shock, and, under the conditions present, constituted an extremely radical measure. I also was alone with my patient, the nurse not having arrived as yet, and the husband and other members of the family were not at home. I therefore selected an expectant plan of treatment and endeavored to stop the hemorrhage by conservative means. A large ice bag was placed over the spot where I suspected the placenta to be situated—this was the left side near the fundus, where the painful bulging-out could be located—and I was rewarded with an immediate vigorous uterine contraction and the cessation of the bleeding. The pains now came regularly every ten or fifteen minutes, gradually driving the presenting head deeper into the pelvis. The fetal heart sounds were rapid but clear. At 3 A.M., twelve hours after the first appearance of the hemorrhage, the pains became weaker and less frequent, and as

¹ New York Medical Record, 1891, No. 22.

the patient was tired, but otherwise in a fair condition, I administered a small dose of morphine, which produced a few hours of refreshing sleep. The progress of labor remained normal until 3 P.M., when she again began to flow. The external hemorrhage was slight, yet the patient gave very decided symptoms of loss of blood, such as restlessness and crying for air. The os was now nearly fully dilated, and an asphyxiated but living child was rapidly delivered. Immediately after the birth of the child a severe hemorrhage took place. The uterus, which had been carefully watched, did not contract, but remained soft and flaccid. I therefore expressed the placenta, which could be done without difficulty, and with it came a large amount of fluid and clotted blood. The patient now became unconscious, the pulse was miserable, and the face was very pale. Hypodermic injections of ergotol, camphor, and brandy were rapidly administered; a hot uterine douche was also given. The head was lowered and hot bottles were placed around the patient. The uterus contracted under persistent massage and the hemorrhage ceased. The pulse became better, consciousness returned, and the patient was out of danger. All the preparations to combat a possible post-partum hemorrhage and syncope had been made before the child was delivered. Hypodermic syringes were filled and placed within easy reach. Hot and cold uterine douches were in waiting, and one of the patient's relatives was pressed into service to hold the uterus. I firmly believe that if any of these preparations had been neglected my patient would not have rallied and this terrible accident would have claimed another victim. The recovery was slow. An examination of the placenta showed that it had been situated in the fundus, the tear on the membranes being far removed from the placental margin. On the inferior border of the uterine surface of the placenta was a spot about the size of a hand, which looked as if it had been compressed. It was thinner and covered with dark, firmly adherent clots. This was the place where the premature detachment of the placenta had taken place, and it accounts for the fact that the hemorrhage was to a large extent external. Had the placenta remained adherent all around, then the blood could not have escaped externally and we would have had to deal with a concealed hemorrhage. I regret that no microscopical examination of the placenta was made, which would possibly have been of value in clearing up the etiology of accidental hemorrhage. Two other cases are found in obstetrical

literature in which Graves' disease was complicated by a premature separation of the placenta. Häberlein reports a case¹ which resembles my case in many respects. The woman had symptoms of exophthalmic goitre, and suffered from accidental hemorrhage after having had a fall two weeks previous. The placenta showed white infarctions and extravasations of blood. Another case² was observed by Benicke. The patient was nearly at full term, and accidental hemorrhage took place without the presence of labor pains or any other known cause.

It is possible, yes, even probable, that in cases of Graves' disease changes in the uterine circulation take place which can cause a premature separation of the placenta. Vaso-motor neuroses are admitted to be present in Graves' disease. A paresis of the vaso-motor nerves produces a sudden dilatation of the uterine blood vessels, hence a disturbance of the placental circulation sufficient to cause an extravasation of blood upon the placental surface, which again, acting as an irritant, produces uterine contractions and a gradual separation of the placenta. I also explain the separation of the placenta, the pressure which it generally undergoes, and the distention of the uterus, through Pasquale's law of hydrostatics. The small area of initial separation is subjected to the maternal blood pressure, and, being a *locus minoris resistentiæ*, a dilatation of this space and separation of the placenta take place—a process similar to that observed in traumatic aneurism. The fibrous infarctions of the placenta which Häberlein found are very commonly met with and can hardly be regarded as a pathological condition. If they in themselves could be a cause of accidental hemorrhage, this complication would be very frequent, instead of which it is exceedingly rare.

Traumatism, either direct or indirect, must be admitted as an important etiological factor of accidental hemorrhage, in spite of the contrary opinions held by some very prominent authors. Too many cases of accidental hemorrhage clearly traceable to traumatism are reported to be entirely ignored.

Underhill relates a very interesting case in which the hemorrhage was caused by direct traumatism.³ A multipara, a large and heavy woman, was hanging clothes out of her window. She leaned upon the window-sill, so that most of her weight came

¹ Centralblatt für Gynäkologie, 1890, No. 26.

² Müller's "Handbuch der Geburtshülfe."

³ Transactions of the Edinburgh Obstetrical Society, vol. vi.

upon the pregnant uterus. She soon began to flow and fainted. When seen she was bleeding, anemic, and with a quick and weak pulse. The os was the size of a dollar; the membranes were entire. The fetal heart sound could not be heard. Version by bipolar method proved exceedingly difficult, but was finally accomplished and a dead child was extracted. The placenta was followed by a large quantity of clots. In this case the cause of the accident was clearly traumatic; the direct pressure of a heavy body upon the uterus produced a separation of the placenta.

In another case, published by Dr. Greene,¹ the trauma was of an indirect character, but of sufficient severity to lacerate some of the placental attachments. A multipara slipped upon a piece of ice and felt a sharp, lancinating pain in the left side near the fundus uteri. For two hours she kept upon her feet without discomfort, when suddenly she felt weak, faint, and became unconscious. When seen the hemorrhage had ceased, but a large clot was found in the vagina. The uterus was moderately tense and presented a slight swelling near the fundus, on the left side, which was painful upon pressure. The os was dilated the size of a dollar. The presenting head was pressed into the pelvis and delivery completed. The birth of the dead fetus was accompanied and followed by considerable hemorrhage.

Emotional shock will cause a contraction of the uterus and thus may be a cause of accidental hemorrhage. According to Barnes, emotion is a powerful agent in determining a sudden flow of blood to the uterus.² He says that the sudden tension of the vessels, aided or not by the contraction of muscular walls, is relieved by extravasations of blood between the placenta and uterus.

A case is reported by Martin³ which is an excellent contribution to this class of cases. A woman, while walking along the street, received a severe mental shock by seeing a man thrown from a wagon. Half an hour later she felt a sudden flow from the uterus, and, thinking that the membranes had ruptured, came at once to the hospital. An examination showed the case to be one of accidental hemorrhage, and not placenta previa for which it had been mistaken. Thirty-six hours later she was delivered of a dead child, followed by the expulsion of the

¹ Medical News, 1892, p. 18.

² "System of Obstetrics," p. 562.

³ New Orleans Medical and Surgical Journal, 1891.

placenta and a large quantity of coagulated blood. About one-third of the placenta had been prematurely detached. The mental shock most likely produced a sudden and rapid contraction of the uterus, resulting in a partial separation of the placenta. The effused blood gradually increased the breach by direct pressure. Kiwisch observed that the flooding need not immediately follow the nervous shock, but that hours, or even days, may pass.

In cases of hydramnion where a large quantity of water escapes at once and the uterus rapidly diminishes its volume, or in twin pregnancies after the expulsion of the first child, the contraction which follows may separate the placenta and cause a fatal flooding. In these cases the hemorrhage takes place during the progress of labor, generally without any previous warning. A case in which both twin pregnancy and hydramnion were present has been reported by Dr. Sligh.¹ The case so well illustrates the points referred to that a synopsis of it may not be out of place: A primipara in the fifth month of pregnancy was seized with labor pains. The abdomen, which had grown enormously within the past month, was much distended. Labor progressed slowly, but normally. When the os was dilated from two to three inches the membranes were ruptured, and instantly the bed was deluged with an enormous quantity of liquor amnii. What followed is best retold in Dr. Sligh's own words: "I was instructing the nurse to clean the bed when I noticed the patient growing pale, at the same time hearing a gushing sound. I threw back the covering, and from the vagina came a stream of blood nearly as large as my fist, striking the feet of the patient and the footboard of the bed. Instantly forcing my hand into the vagina and uterus, I grasped the presenting fetus, delivered it at once, dropped it on the bed; reinserted my hand, to find a second fetus, which was out and on the bed in less time than it takes to tell it; and for the third time my hand went into the uterus to deliver the placenta, but, the uterus commencing to contract, I allowed my hand to remain, with my other hand making compression through the abdominal walls. From the time that the hemorrhage began and the bleeding stopped was probably not over fifty seconds, but in this short time the patient had lost six pounds of blood and was in a con-

¹ AMERICAN JOURNAL OF OBSTETRICS, 1892.

dition bordering on syncope. She responded well to treatment, and made an uneventful recovery."

Cases like this one deserve the closest study and attention. Everything depends upon prompt and intelligent action, and this patient undoubtedly owed her life to the efficacious way in which she was treated. It is fortunate that this class of cases is exceedingly rare, but it is well to remember what may happen in every case of hydramnion and plural births.

Unusual shortness of the cord may be a cause of accidental hemorrhage by producing a separation of the placenta during the progress of labor or before the advent of uterine contractions, if the cord is very short and the movements of the fetus are very active. In Dr. King's excellent paper on dystocia from short or coiled funis,¹ cases may be found in which a short cord produced a more or less severe accidental hemorrhage. Other cases are observed by Meyer and Gräfe.² The latter points out the fact that this class of cases is rarely met with.

I next wish to call attention to an exceedingly interesting class of cases in which the accidental hemorrhage is probably due to an anatomical abnormality of the uterus. If in cases of uterus bicornis, in which the development of one horn is only rudimentary, conception takes place, the placenta may attach itself in the rudimentary horn while the main uterine body contains the fetus. Should now the rudimentary horn contract and the rest of the uterine fibres remain unchanged, a premature separation of the placenta may be the result. That such incoördinate contractions in uterus bicornis may occur is proved through the observations of Birnbaum, Heppner, and Teller.³ Underhill reports a case⁴ in which accidental hemorrhage was probably caused by a uterine anomaly. A multipara had a severe flooding when about eight months pregnant. She had similar floodings four times during the present pregnancy, the first of which occurred at the tenth week. When seen the following condition was found: Pale, anemic; the bleeding had almost ceased. Pains at long intervals. Uterus contracted and hard. In the right iliac fossa was a projection from the body

¹ AMERICAN JOURNAL OF OBSTETRICS, vol. xxvi., No. 3.

² Zeitschrift für Geb. und Gyn., Bd. xxiii.

³ Winckel, "Lehrbuch der Geburtshülfe," p. 524, and AMERICAN JOURNAL OF OBSTETRICS, 1884, p. 142.

⁴ Loc. cit.

of the uterus about the size of a fetal head, which increased and diminished in size at times. Os slightly dilated. The hemorrhage returned some hours later, and, rupturing the membranes, a living child was born. After the delivery of the child the tumor could be felt distinctly contracting and expelling the cup-shaped placenta. The tumor disappeared after the labor was over, and was not observed in a subsequent pregnancy. A similar case is described by Matthews Duncan in his "Researches in Obstetrics." The case was one of vagina duplex; thus it is probable that a uterine abnormality also was present. The sac containing the placenta was far removed from the main uterine body. He called the condition "sacculated uterus," and also refers to other authors who speak of this exceedingly rare malformation. Duncan considers it an open question whether this sacculated condition indicates a tendency to double uterus, or whether the placenta has developed in a Fallopian tube while the fetus grew in its normal site. It is quite certain that in Underhill's case the sac consisted of contractile tissue (as he also points out). The patient herself was aware that it changed in size and consistence at times during pregnancy. Contractions during labor and expulsion of the placenta were observed by Underhill, who also says that the hemorrhage was doubtless due to some irregular contraction of this abnormal sac, causing a rupture of the utero-placental sinuses and separation of the placenta.

The most frequent cause of accidental hemorrhage is a pathological condition of the placenta, produced either through general disorders such as syphilis and nephritis, or local inflammatory changes in the uterus. There are authors—Veit, Gräfe, and others—who claim that a premature detachment can never take place in a normal placenta, but that a diseased condition must be present; then, if an exciting cause occurs, the placenta, which, owing to its pathological changes, has only a feeble hold upon the uterine walls, loses its grip, and an accidental hemorrhage is the result. Winter¹ reports three cases of accidental hemorrhage in patients suffering from nephritis. Neither traumatism nor mental shock was present, and the accidental hemorrhage could only be traced to the kidney disorder. The first case concerns a patient who had marked symptoms of Bright's disease and was suddenly seized with a severe uterine

¹ Zeitschrift für Gyn. und Geb., Bd. xi.

hemorrhage accompanied by distressing backache and vomiting. The uterus was enlarged and very tense, neither fetal parts nor movements could be felt, and the heart sounds were absent. The pulse was small and rapid. Labor pains were not present, but the patient complained of severe abdominal pain. The expulsion of the dead child, eighteen hours after the initial hemorrhage, was followed by the detached placenta and a large amount of fluid and coagulated blood. The placenta appeared compressed and was covered with masses of firmly adherent clots. The history of the second case is about the same, but, besides the nephritis, hydramnion was present. The hemorrhage was severe, the child dead, and the appearance of the placenta was identical with the first case. In the third case the hemorrhage was mainly concealed. The patient had anasarca, and the urine contained a large amount of albumin. The uterus was enormously distended, and the fetal heart sounds could not be distinguished. The vagina was tamponed to stop the external hemorrhage, but the bleeding continued in the uterus. Winter then resorted to bipolar version, and a macerated fetus was easily extracted, followed again by huge masses of fluid and coagulated blood. The placenta was thin and compressed.

Löhlein, Veit, and Ruge observed premature detachment of the placenta in cases of Bright's disease, and they are positive that a connection between accidental hemorrhage and nephritis must exist. Fehling¹ has made a valuable contribution to the etiology of accidental hemorrhage. He found in eighteen cases of albuminuria twelve times a diseased placenta. In some there were inflammatory changes, others showed extravasations of blood into the substance of the placenta.

Meyer² found the placenta to be diseased in two cases of accidental hemorrhage, the condition present resembling endometritis decidualis.

Coe³ reports a case in which the placenta became detached during the progress of labor. The hemorrhage was mainly concealed. No cause for this accident could be found, but the placenta was the seat of a general fatty and calcareous degeneration. He excluded syphilis; his patient suffered from dysmenorrhea and endometritis before she became pregnant. May

¹ Centralblatt für Gynäkologie, 1885, No. 41.

² Zeitschrift für Schweizer Aerzte, 1891.

³ AMERICAN JOURNAL OF OBSTETRICS, vol. xxiv.

it be possible that, owing to the pathological condition of the uterine mucous membrane, the placenta became diseased, its grip upon the uterine walls enfeebled, and the simple presence of uterine contractions sufficient to cause a premature detachment?

Underhill¹ describes a case of accidental hemorrhage in a patient suffering from secondary syphilis. The child showed symptoms of congenital syphilis, and died of that disease a few weeks later. The placenta was in a highly diseased and abnormal condition.

Guérot² remarked, during a discussion of a case of accidental hemorrhage, that he observed this accident in two cases in which syphilis was the only ascertainable cause for the hemorrhage.

It is not improbable that many cases of accidental hemorrhage, in which we in vain seek for an exciting cause, could, if rigid investigations were made, be traced to syphilis.

Symptoms and Diagnosis.—In discussing the symptoms of accidental hemorrhage we must differentiate between concealed and open hemorrhage. In the former the blood remains within the uterine cavity. It occurs if the placenta remains attached throughout its whole circumference and the blood escapes into the separated central part; or the presenting part may so closely fit into the lower uterine segment that the escape of the blood from the uterus is thereby prevented. The first symptoms which generally engage attention are the results of the loss of blood. It will be unnecessary to enumerate the symptoms of hemorrhage: they vary in intensity, and not infrequently they are accompanied by the symptoms of shock. The shock may be present in cases where the loss of blood is not very great, and it is then caused by uterine overdistention. Abdominal pain is a constant symptom. The patients describe it in various ways, and there is no doubt that its intensity and character differ in different cases. A dull, tearing pain is present in some; others have a sensation of great distention and a feeling of tightness. Colicky, cramp-like, and bearing-down pains are complained of. Thus it can be seen that every grade and shade of suffering can be present. True labor pains are generally absent. The uterus is larger than normal, and appears to be tense and much distended. The fetal parts, which, if the case was seen before the advent of the hemorrhage, could clearly be distinguished, can no longer be

¹ Loc. cit.

² Arch. de Tocol., 1892.

felt. A bulging spot is not infrequently found; it is round, conveys a boggy sensation, and is often the seat of great tenderness. The fetal heart sounds are absent if the placental detachment is extensive; they are always altered. Upon making a vaginal examination we find, in cases of open hemorrhage, the presence of blood and the absence of placenta previa. In concealed hemorrhage there may be a discharge of blood serum, which has been mistaken for liquor amnii. Another symptom observed by many writers is the prominence of the vaginal portion of the uterus. It appears to be under pressure and bulges into the vagina; the presenting part, at the same time, may be high above the pelvic brim. If the hemorrhage is external the absence of placenta previa makes the diagnosis clear. Lacerations of the cervix and rupture of the uterus can easily be excluded. In concealed hemorrhage the diagnosis is more difficult, and from the recorded cases it appears that it is seldom made in the beginning of the bleeding. A ruptured extra-uterine pregnancy may resemble concealed hemorrhage. The symptoms of the hemorrhage, the changes in the contour of the uterus, the peculiar condition of the portio vaginalis, the presence of abnormal pains, and the altered fetal heart sounds are the main diagnostic points. If we suspect accidental hemorrhage, inquiries into the history of the case may aid in the diagnosis.

Prognosis and Treatment.—In concealed hemorrhage the prognosis for both mother and child is very grave. Out of Goodell's one hundred and six cases fifty-four mothers died and only six children were born alive. In external hemorrhage the prognosis, especially for the mother, is more favorable. This may be explained by the fact that the uterus is less distended, thus lessening the amount of shock, and that the detachment of the placenta is often incomplete. The earlier diagnosis also lessens the mortality. About eighty-five per cent of the children are still-born.

In shaping the mode of treatment we must only consider the welfare of the mother, because the child, on account of its interrupted circulation, will generally perish. The main object of our action is to effect delivery at the earliest possible moment; not until then do we possess reliable means to check the bleeding. Yet in many cases this will be only a desideratum. At the time when the patient is first seen the soft parts are, as a rule, unprepared, and only Cesarean section or the accouche-

ment forcé can effect delivery. In cases where we have the alternatives, stop the hemorrhage or lose the patient, such radical procedures are justified. In some cases we use Barnes' rubber bags, or dilate the cervix through deep incisions as advocated by Skutsch and Dührssen. The latter two methods, intelligently employed, will certainly reduce the yet high mortality. In other cases, where the hemorrhage is mainly external and the patient in a fair condition, a more expectant plan of treatment may be employed. We then endeavor to stop the hemorrhage and leave the course of labor as much as possible to Nature. Baudelocque advocated the use of the ice bag over the suspected seat of hemorrhage, and a tight abdominal binder. The ice bag was very successful in my case; it caused an immediate uterine contraction and indirectly stopped the bleeding. Braxton Hicks applies cold by atomizing ether upon the abdominal walls. Tamponing the vagina has variously been recommended, yet I have failed to find many cases where its employment was followed by success. It may, by dilating the vagina, cause uterine contractions; but these can be only feeble in the overdistended uterus, and they are apt to increase the shock which so frequently accompanies cases of concealed hemorrhage. In external hemorrhage it causes a retention of blood in the uterine cavity, and produces a concealed hemorrhage with its graver prognosis; it also prevents the observation of the progress of labor and the increase or cessation of hemorrhage. In placenta previa tamponing of the vagina may be useful and has many advocates, but in accidental hemorrhage the vaginal tampon should be abandoned.

Rupture of the membranes diminishes the contents of the uterus and causes its contraction. If the labor is well advanced it is a safe and excellent method, but in cases where the labor pains are absent and the os is rigid and undilated the membranes ought to be preserved as long as possible. Early rupture of the membranes—that is, before they have produced dilatation of the cervix—delays the progress of labor, and should version be necessary the operation would have to be performed under very unfavorable conditions.

If the soft parts are dilated or dilatable, and rapid delivery is indicated, version, forceps, or craniotomy may be undertaken—version, preferably by the bipolar method, if the head is movable above the brim; forceps in all cases where the head has

entered the pelvic canal; when the head presents and the child is dead, craniotomy may be performed, and the perforation of the living child or symphysiotomy are justifiable procedures in cases of accidental hemorrhage complicated by pelvic contraction. Ergot, as a prophylactic against post-partum hemorrhage, has been successfully employed. It should not be administered until the birth of the child is soon to be expected.

Post-partum hemorrhage very frequently follows accidental hemorrhage, caused, no doubt, by uterine overdistention and a condition of general anemia and muscular relaxation. Syncope and collapse are also observed. To meet these complications we must prepare ourselves before the birth of the child. The remedies and prophylactic measures to be employed are so well known that their enumeration may be omitted, but I wish to emphasize the value of the intra-uterine tampon of iodoform gauze. It was first advocated by Dührssen, of Berlin, who also devised a pair of forceps which makes its application quite easy. It should be employed immediately, if massage and hot intra-uterine injections fail to produce uterine contraction. Care must be taken to pack the uterine cavity. I have witnessed a post-mortem in a woman who died from post-partum hemorrhage in which the uterus had been tamponed with iodoform gauze. When the womb was opened it was found that the gauze tampon only extended up to the internal os, and the distended uterine cavity was filled with coagulated blood.

In closing I desire to state that, besides my limited personal experience, this paper is the result of the study of a large number of cases reported in our own and foreign journals. I must confess that, reading the various papers and text books, one becomes bewildered by the mass of different and contradictory opinions; one rejects as worthless what the other pronounces a panacea. To form an unbiassed opinion, and gather out of the chaos the kernel of truth, is a difficult task, and I hope that my attempt has not been altogether in vain.

37 EAST 62D STREET.

I append

BRIEF NOTES OF FIVE CASES OF ACCIDENTAL HEMORRHAGE

Kindly furnished me by my friend Dr. ROBERT L. DICKINSON, lecturer on obstetrics and assistant obstetrician to the Long Island College Hospital.

CASE I.—Mrs. R., æt. 25, had always been delicate and nervous. Was a twin. Is believed to have had the hemorrhagic diathesis; she has bled freely from an eroded pimple. In her first pregnancy, at the seventh month, after a long, quiet drive, pains began in the night at 4 A.M. They were cramp-like, with considerable pelvic tenesmus. At 9 A.M., when I saw her, there was nothing to awaken suspicion about the uterus, except possibly the amount of suffering. The cervix was beginning to dilate well, and the pulse and general condition were good. During my absence of an hour and a half the pains became so severe that the patient's brother-in-law, a physician, was obliged to give chloroform. On my return I found a very marked increase in the size of the uterus, with a rather tense, rounded prominence at the left side of the fundus, a flagging pulse, and an absent fetal heart. By manual dilatation and the forceps the delivery was accomplished within less than an hour, at 11:30 A.M. The liquor amnii was bloody, and, together with the clots, filled a large basin. The child was still-born. Hemorrhage continuing, the placenta was at once removed by the hand and found in the left horn of the uterus, with a considerable portion detached. Hot water and scraping the walls failing to cause contractions, the cavity was packed. At 12:30 P.M. she began to sink from the blood loss and shock, and, notwithstanding saline infusions into the cellular tissue and vigorous treatment, she died at 4 o'clock.

In such cases as this the patient's life hangs on an early diagnosis, yet an early diagnosis cannot be made with sufficient positiveness to warrant the forced delivery that will alone save life. Version would have been no more rapid than forceps extraction, as the head was easily pressed into the pelvic cavity, and version would have increased the shock. Some delay was necessary in dilating the cervix, which would have been obviated by Dührsen's incisions, but these were not allowable in a bleeder.

CASE II.—M. R., æt. 36, multipara, had rapid labors and several miscarriages. The pelvis was ample, the head L. O. A., the patient at term. During the night, while in bed at the hospital, a profuse hemorrhage occurred, for which the interne tamponed. Pains were slight during the next twelve hours. Then she was put upon the table, and the placenta was located by external palpation on the lateral wall, with a boggy mass below it which was believed to be clot. After consultation with Dr. Jewett the cervix was dilated manually, and the edge of the placenta found two and one-half inches above the external os when the dilatation was nearly complete; it was loose for about an inch on its lower border, and plastered with large, tough clots. Bipolar version was rapidly effected, but extraction of the after-coming head was seriously impeded by the india-rubber grip of the cervix. Forceps was needed to overcome this stay of proceedings. The vagina was packed on account of moderate, persistent flow with

some shock ; but continued oozing, added to the original hemorrhage, blanched her, and five hours later a cervical laceration was sutured. Old scar tissue had been split and the tear was due to an insufficient manual dilatation. The child lived. The puerperium was normal except for partial retroversion with subinvolution.

This case is classed as a hemorrhage from a normally located placenta because the lower margin was above the dilating zone. The diversity of opinions as to the scope of the term placenta previa brings this case on debatable ground. Barnes, for example, calls any implantation within two to four inches above the os a lateral placenta previa, while Winckel says that normally the lower edge may fall at this level.

CASE III.—Mrs. J. M., æt. 25, has a distinct hemophilic tendency. Her first labor occurred sixteen months ago. Blood loss was continuous three weeks before the child was born, and during the labor she says she bled freely. The child weighed between four and five pounds, and lived.

During the second labor, at term, hemorrhage began when the cervix was one-third dilated and the membranes intact. The contractions were rapid and efficient and the cervix fairly dilatable. As the flow grew alarming, manual dilatation was rapidly completed, the head forced into the roomy pelvis by pressure on the fundus, and extracted by the forceps. The delivery was very bloody. The placenta had to be detached with the fingers, and nothing short of tight tamponade of uterus and vagina checked the downpour. The patient's mucous membranes were colorless, although the whole process had been accomplished within a few minutes—the minutes that seem hours. The child lived, but the mother rallied very slowly from her prostrate condition. The placental site was high and partly fundal, partly lateral.

CASE IV.—X. Y., æt. about 30, IIpara. First child seven years ago ; several miscarriages since. After exertion mild pains began, and a loss of blood occurred that was probably not large in amount, as she did not show any signs of it several hours later when I saw her, although it seemed to her great. As the pains and bleeding had ceased, she was tamponed in the vagina, and the packing replaced at intervals for three days. She was at term. No effectual pains being started by the gauze pack, chloroform was given, the cervix dilated to admit three fingers, the membranes stripped off as high as the fingers could reach, and cervix, lower uterine segment, and vagina tamponed. A rapid labor followed. The placenta was out of reach ; it did not extend into the lower uterine segment.

CASE V.—A. H., æt. 37, multipara, has a history of hard labors, with septic fever following the last. Her labia were varicose, her cervix had been lacerated, and the pelvis was ample. The head presented in the L. O. A. position. She was brought into the

wards with the statement that she had suffered some hours from severe cramp-like pains with vomiting and purging. After six hours in the first stage, and nearly an hour before the cervix effaced itself and the membranes burst, a hemorrhage occurred that almost exsanguinated the patient. The liquor amnii was abundant and clear. The expulsion stage lasted one and a quarter hours, and the exit of the child was followed by a large mass of clots. An hour later, as the Credé manipulation had failed and some bleeding continued, the placenta was withdrawn by the hand. It was found attached over two-thirds of its area at the fundus. The child weighed seven and three-quarter pounds and thrived. The temperature ranged in the neighborhood of $101\frac{1}{2}^{\circ}$ for four or five days, which was due possibly to a pns tube, but she made a good recovery. (Service of Dr. Northridge.)

I think that we shall learn to take prompt and decisive action in the obstetric hemorrhages. The treatment of such hemorrhages has not yet been emancipated from the fear of sepsis. We no longer fear to cause sepsis, but we do fear to cause shock—to add to the shock of blood loss the shock of rapid delivery or vigorous treatment. In the five cases here outlined active interference saved four lives, three of which were in danger.

THE ETHICAL SIDE OF THE OPERATION OF OÖPHORECTOMY.

BY

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I CONSIDER it a privilege to be able to present to the profession the following terse, crystallized, earnest declaration, from a purely ethical standpoint, criticising all operations which interfere with the procreative functions of a woman.

Since receiving this letter I have been again travelling in mind over that much-discussed ground kept so constantly before us in the journals of eight and ten years back.

I think the only causes for which we now remove ovaries and tubes apparently normal or capable of extruding, and transmitting an ovum to the uterine, are:

1. Menstrual insanity;
2. Certain cases of insanity, associated with marked menstrual exacerbations, or distinctly menstrual in type;
3. Menstrual epilepsy;
4. Osteomalacia;

5. Extreme dysmenorrhea rebellious to every other mode of treatment in very rare instances; and,

6. Occasionally to check the growth of myomata.

All gynecologists will not assent to the fifth heading, but I still insist that there are cases justifying its place in the list.

My correspondent, as will be seen, takes a radical view of the whole matter—"nothing short of impending death justifies the operation." I do not now propose to discuss the *pros* and *cons* of this important question, or to reply in future to any criticisms directed against this remarkable letter. I simply present it with the additional comment that, as surgeons in the constant presence of a suffering patient, perhaps we tend at times, under stress of sympathy, to prevent the ethical side of the argument being represented in its due proportions.

The operation here spoken of was performed ten years ago, for retroflexion, hydrosalpinx, and pelvic peritonitis.

NOVEMBER, 1892.

MY DEAR DR. KELLY:—Mrs. A. tells me that in your speciality of surgery you are criticised for "unsexing women." Will you permit me, as a husband and as a priest, to give you my opinion of that for which you are criticised.

While ovariectomy does not destroy sexual desire nor the pleasure of cohabitation, yet the removal of the organs of motherhood causes a serious obstacle to the affections due a wife. For in depriving a woman of the possibility of children there is taken from the home the unifying power of parental love. And no high-souled affection can be sustained by mere sexual pleasure where the hope of children is taken away; and every Christian husband who understands God's chief purpose in marriage—namely, reproduction of species—cannot justify marriage as merely the means of sexual gratification. As a husband I believe that neither life-long helplessness nor anything short of impending death justifies ovariectomy, if, with the diseased organ or organs remaining, there could be the remotest reasonable hope of children. For the woman, pain of body is preferable to the anguish of soul attendant upon the destruction of the hope of becoming a mother. And as a man I should, in my present light, conscientiously decline to marry the best of women from whom had been taken the sacred fountain of motherhood. As a priest I believe that the absence of that function

excludes the right of marriage, and, if performed after marriage, its absence takes away the right of sexual cohabitation, except where that act is needful to prevent mental impurity or the sins of adultery or fornication.

Since the diseased state of the ovaries taken from Mrs. A. before marriage ratified your prognosis, and you were wise in having my consent to both operations, and the assurance of mutual agreement between the betrothed that the second operation, in which the remaining ovary was removed, was based upon the fact that Mrs. A. would be better fitted for a life of usefulness as a clergyman's wife, your operating in this instance was absolutely without reproach in the operation of ovariectomy upon my wife. And you are at liberty to use this letter wherever it may tend to justify yourself and the special surgical skill with which God has endowed you, with but such limitation as your honor as a Christian gentleman and physician places upon you in protection of Mrs. A. from unpleasant publicity as to the fact of ovariectomy having been performed upon her. Believe me, with profound respect, etc.

THE CESAREAN SECTION AND ITS SUBSTITUTES.¹

BY

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No better evidence of the marvellous development of surgery during the past ten years exists than the status of the Cesarean operation then and now. At that time surgeons and obstetricians were only fairly beginning to realize the errors of the past and to be influenced by the successes obtained in abdominal surgery. Undoubtedly the modern successful revival of the operation is to be attributed to the introduction of the principle of antisepsis into surgery. The boldness in operating and in reasoning about operations, which grew out of the successes made possible by this principle, led men to throw off the shackles of the past and to apply the light of the present to this as to all

¹ Read before the Philadelphia County Medical Society, November 9th, 1892.

other operations. The result has been to show that success in Cesarean section depends upon the same principles which underlie success in all operations, and that the operation, instead of being "the most dangerous in surgery," is to be classed among the comparatively safe operations, having a scarcely greater inherent mortality than ovariectomy.

It is my purpose in this paper to discuss briefly the present status of the Cesarean section and the principles underlying its successful performance, and to consider it in its relation to its substitutes, puerperal hysterectomy, symphysiotomy, and embryotomy.

The statistical method of establishing the status of an operation is the one usually followed, but, as is well known, it is open to many objections and can yield anything but reliable results. First there is the difficulty of securing the entire number of cases, and then the greater difficulty of knowing the condition of the patients at the time of operation, and then the difficulty of estimating the degree of skill of the host of operators included in the table. Hence, even if the table includes all the cases, it simply demonstrates the results of good obstetrics and good surgery together with bad obstetrics and bad surgery—results which are worthless for the purpose in hand. I believe a better method is to study the subject in its general aspects, and to confine our study of statistics to those of a few well-known operators. In a typical Cesarean operation done before labor, or during its first stage, we have the following conditions to deal with: The patient is a healthy woman, in good condition, with a healthy peritoneum, a healthy uterus with aseptic contents, and with a non-infected birth canal. Under such favorable conditions an abdominal surgeon would expect the best results from any operation not unduly prolonged and not accompanied by serious hemorrhage. Ovariectomy under these conditions has yielded the best results. Experience has shown that pregnant women are good subjects for anesthesia and for operations in general. The technical details are easily under the control of an expert. The incisions are made under the guidance of the eye, and the suture ligatures are likewise so placed. Hemorrhage from the wound is thus easily controlled by the surgeon, and hemorrhage from the placental site is controlled by the action of the uterus itself. Hence the dangers, theoretically, resolve themselves into the possibility of infecting the peritoneum by the surgeon's

hands, instruments, etc., and of hemorrhage due to non-action of the uterus. The first accident *should* never happen, and practically it very seldom does in careful hands; and the second is even more rare, as the uterus only fails to act when its muscle is exhausted by long hours of labor. The theoretical considerations involved would indicate that the inherent dangers of the operation are slight, and the results obtained by the best operators amply bear this out. For example, Sänger has had nine operations without a death. Zweifel did thirteen operations in Leipzig without a death, then operated on a case having a dead and putrid fetus and lost it. Eight operators in Leipzig, including Sänger and Zweifel, had thirty-six cases with two deaths, one of which was referred to above. The results of Leopold, and Cameron of Glasgow, are similar. They saved the mothers who were in good condition, and lost only those whose condition before operation indicated such a result (the later results of Leopold and Cameron are not obtainable). In this country there have been no large series of operations. Drs. Kelly and Lusk have had four each. Dr. Kelly saved all, although one case was desperate at the time of operation. Dr. Lusk lost one unfavorable case. The Kensington Hospital for Women (two cases by Kelly and two by myself) and the New York Maternity Hospital have each had four cases and saved all.

These statistics are quoted simply as illustrating what has been accomplished. Better results can be obtained in *favorable cases*, as the above include a certain number of unfavorable cases—that is to say, some bad obstetrics, and even some bad surgery; for example, Zweifel's fatal case was unfit for the classical operation, and should have had the Porro operation or panhysterectomy.

An advocate is said to harm his cause by stating it too strongly, but I feel that the facts in the case justify and fortify the statement that the Cesarean section done by the expert before or early in labor is scarcely more dangerous than the average of labors as at present conducted in our great cities. Undoubtedly the average mortality of the operation as done heretofore is many times greater, but it cannot be too strongly insisted upon that this represents the mortality, not of the operation, but of the bad obstetrics and the bad surgery which heretofore has largely prevailed.

Operators are in agreement concerning the principles governing success in this operation, with three exceptions. The points

agreed upon are: 1. The diagnosis should be made during pregnancy and the operation determined upon, and the patient should be put in good condition for operation. 2. The operation should be done with the same antiseptic and other care given to other celiotomies. To achieve the best results it must be done by an expert. 3. The after-treatment should be the same as after celiotomies in general, modified by the treatment necessary for the puerperal state.

The points at issue are: 1. Should the operation be done before labor, or early in the first stage of labor? 2. Should the uterus be turned out, or incised *in situ*? 3. Should the uterus be constricted by rubber tubing to control hemorrhage during operation, or should manual compression be employed?

The first point is the most important. Desiring to avail myself of his extensive knowledge of this subject, I have asked Dr. Robert P. Harris, of Philadelphia, who was a very early advocate of the Cesarean operation before labor, to give me his opinion, which follows:

"My studies of the Cesarean section commenced in 1869 and have been continued, with some interruptions, ever since, during part of which interval I have witnessed many operations¹ and watched the cases into recovery, having seen but two die, and these had a bad prognosis. My first object in study was to discover why some reported cases of our country recovered and why others in much larger number died. In time I became thoroughly convinced that the seeds of death were sown, as a general rule, before the knife was used, either through pre-existing disease or the result of parturient exhaustion and change. This was made to appear much more decidedly after it became the practice to close the uterine incision by sutures in all cases, such as has been done in the last ten years upon seventy women in the United States. It was then made to appear that delay in

¹ I have been present at three Porro operations and visited two more cases in their convalescence. One woman died who had albumin in her urine; the rest recovered. I have been present at eight Säger-Cesarean operations, and many times visited a ninth woman in her convalescence, which was a battle for life against a taint of syphilis. One woman with a very unfavorable prognosis died. I made an autopsy in the case of a rachitic dwarf in 1885, upon whom the old Cesarean operation was performed in 1835 and in 1837. One child is now 57; the other died when 43. The mother was 76. I saw the girl and boy in their early childhood on several occasions. I have thus taken a special interest in fifteen Cesarean deliveries, from which there were thirteen recoveries.

operating prevented a rapid uterine union and favored the production of peritonitis, sepsis, and nerve shock ending in death. Finding the value of early operating, I made it my special mission to urge upon all operators to make their celio-hysterotomies as soon after the invasion of labor as possible; and it has been the acceptance of, and action upon, this belief that has led so largely to the reduction of our mortality in America. In fact, it has become a general belief that if a woman has no organic disease and is operated upon directly after labor has begun, she has a very fair prospect of recovery; and our records plainly establish this fact.

“Although the importance of early operating to recovery has been demonstrated, it has been found to be quite difficult to secure the patients in proper season for this, and it has only been accomplished in a small proportion of cases, even in our large cities. A labor of at least an hour or two was for a long time thought to be an essential element of success, in order that uterine contraction should be certain to follow the use of the knife, and drainage be secured by having an open cervix. Where an operation was determined upon prior to labor, the inconveniences of a night call and of securing proper assistance at night were a serious obstacle to immediate action, especially in cases at a distance from the operator's residence. This was so much felt to be an inconvenience that Dr. Anna E. Broomall upon one occasion slept night after night at the Woman's Hospital, so as to be on hand to operate directly after labor was announced. She operated in the middle of the night and saved mother and child. This was in May, 1889. She would not wait for labor now.

“It has long been known that an evacuating wound of a pregnant uterus, especially where gestation is far advanced, will be followed at once by a contraction of the organ quite as marked as where it has occurred normally in labor. This has been very remarkably exhibited in cases of horn-rip Cesarean delivery, some of which date a number of years back, and under which ten women and seven children were saved out of fourteen subjects between the years 1530 and 1888, ten of the casualties having occurred during the present century.

“My attention was first drawn to this fact of contraction in a practical way in September, 1880, when I saw the late Dr. Elliott Richardson, of Philadelphia, perform a Porro operation upon a woman, eight and a half months pregnant, at a selected time.

We had considered the case of this dwarf in consultation, and the operation took place in accordance therewith and was fully successful.

“This was the first of a series of Porro and Sänger Cesarean operations that have been performed in this country in which there was no delay in uterine contraction after the removal of the fetus. This operating at a convenient, selected time has been objected to in Europe because of two deaths that occurred under it in the experience of Prof. Hector Treub, of Leyden, within the last five years, through the uteri having failed to contract.

“His first operation was upon a primipara of 28, in whom he completed a Sänger section under cervical compression made with an Esmarch elastic tube. When this tourniquet was removed the uterus filled with blood, and, the hemorrhage proving beyond control, the operation was converted into a Porro and the stump dropped in. The woman died of anemia in three days. Here I believe the uterine atony was due to the paralyzing effect of the elastic tourniquet, which is far less safe and reliable than manual compression. In April, 1886, Dr. Emilio Fasola, of Florence, Italy, had the same difficulty in a case where tubing was used upon a woman *ten hours in labor*, and was obliged to exsect the uterus after completing the first Sänger operation in Italy. He wisely treated the stump externally, and the woman recovered.

“Prof. Treub’s second operation is much more unaccountable in its results, as the tubing was not used, and still the uterus showed but a trace of contraction under hypodermic injections, massage, and faradization. The woman was a rachitic dwarf, four feet five and a half inches high, 41 years old, and pregnant for the fourth time. The operation was completed under the Sänger method, but the woman died from the previous blood loss soon afterward. Against this one case we place fourteen operations in this country in which the fetus has been extracted through a uterine incision, where the women were not in labor when the abdomen was opened, and where prompt uterine contraction followed the evacuation of the amniotic fluid.

“Cases of uterine atony such as that of Prof. Treub’s second must be so rare that we do not feel inclined to weigh it against the many advantages to be gained by an operation before labor and at a convenient, selected time. Cases of cancer of the cervix uteri must not get into labor, if they are to recover, and two

that I have seen operated upon before there were any pains did remarkably well. If we are to choose between operating before labor and not being able to do so for some hours after it has begun, let us take the little risk of atony, and do so at a selected hour, rather than run the multiple dangers of delay."

The advantages of operating at a fixed hour, with patient, room, assistants, and operator ready, instead of doing an emergency operation, decided me in favor of operating before labor in the case of Mrs. C., September 28th, 1892. I was also led to this conclusion by having seen its advantages in two cases operated upon before labor by Dr. Kelly.

To my mind the one objection to operating before labor is that the issue of the labor in some cases might prove the operation unnecessary. But this should occur only in the hands of one unskilled in pelvimetry and in estimating the relative size of head and pelvis, and hence is rather an argument for counsel in diagnosis than against operation before labor. In the future it seems likely that symphysiotomy will supersede the Cesarean section in cases of contracted pelvis with a conjugate above two and three-quarter inches. If this proves true this argument likewise will fall to the ground. The anomalous case of Treub alone stands against the method. Hypodermics of ergotin and strychnine, given *before* operating, should lessen the risk of hemorrhage which he encountered.

The question, Should the uterus be turned out or incised *in situ*? I would answer by saying, do not turn it out. Turning it out complicates the operation by requiring a long incision, giving a large surface for the radiation of heat, favoring displacement or escape of the bowels, and requiring a longer time in suturing the wound. With a little care blood and liquor amnii can be kept out of the peritoneal cavity; and even should this not be accomplished, both are aseptic and can easily be sponged or washed away.

The question, Should the uterus be constricted with a rubber ligature to prevent hemorrhage during the operation? I would answer in the negative. Experience has proven that the risk of paralyzing the uterus in this way is not imaginary, and has shown, in the hands of others, that the practice is unnecessary. I have seen four Cesarean operations, and in them hemorrhage was readily controlled without the tube.

The only other point in the technique that I shall touch upon is the sutures. In my opinion silk is the best material. It can be made aseptic by boiling, and has many well-known good qualities. Enough deep sutures (about seven) should be introduced to control bleeding from the wound. They should be drawn fairly tight. About twice as many superficial sutures should be introduced to insure a neat approximation of the edges of the wound. In my judgment it is best to introduce them in the regular way, and *not* after the manner of Lembert. I have used the method advised in two cases, the first in April, 1890. Dr. Kelly and others now advocate this method. Its advantages are that time is saved, and that these sutures assist in controlling bleeding from the lips of the uterine wound.

The Porro Operation.—The relative merits of the classical and of the Porro-Cesarean section are still under discussion, with the majority favoring the classical operation because of its supposed greater safety. Dr. Harris tells me that the statistics of the two operations are in favor of the classical operation, whether the results are taken of all cases in a given year, or the results of the best operators advocating the two methods. This evidence is of value, but to me it indicates rather a difference in the condition of the cases and in the skill of the operators than in the relative danger of the two operations. In typical cases both operations should give almost perfect results. The fact that the results under the Porro operation are not so good as under the classical operation, I believe is to be explained on the ground that the Porro is the operation of election in cases *seen late*, in cases *already septic*, and in cases complicated by *fibroid tumors*. My own objection to the Porro operation in typical cases is that it unnecessarily robs a woman of her womb and ovaries, and takes away from her the power of bearing children. It has been amply demonstrated that second or third Cesarean operations are more safe than the primary operation, which itself is no longer dangerous. Hence I am opposed to depriving women having deformed pelves of their fertility, whether by the Porro operation or by operations on the tubes or ovaries. The burden of proof as to its value rests with those who advocate this needless sacrifice of the sexual organs.

The Porro operation and panhysterectomy I would reserve for atypical cases. When the pregnancy is complicated by large fibroid tumors, or when the uterus is septic, or when the operator

is called in *late*, after the uterus is exhausted by long labor, I believe the advantages of hysterectomy are manifest. In the first case the patient is cured of the tumor at the same time, without greater and at times with less risk. In the second case the infected uterus is removed and the many dangers of puerperal sepsis avoided. In the third case the dangers of atony of the uterus and possible post-partum hemorrhage and of sepsis (well known to be rare in this class of cases) are likewise avoided. In my judgment the field of the Porro operation and puerperal pan-hysterectomy embraces these three classes of cases. In these cases the advantages of these operations over the classical operation are so obvious as not to require an argument. I have personal knowledge of two deaths from the classical operation which I believe could have been avoided by the Porro. These cases were operated on *late*.

Symphysiotomy.—The operation of symphysiotomy gives promise of being a great boon to women with deformed pelves. The record of fifty-four cases with fifty-three women and forty-eight children saved (Harris) commands our admiration. Even the one maternal death was due, not to the operation, but to metro-peritonitis following a long labor. The operation, however, as a practical fact is too new to us in America to enable us to have fixed opinions concerning its practical value. If, however, the claims of its advocates prove true, especially if the pubic joint heals soundly, rapidly, and well, certainly symphysiotomy will displace the Cesarean operation done for flat pelves with a conjugate above two and three-fourths inches, and also for certain cases of generally contracted pelvis and of osteomalacia; and, moreover, it will take away the old excuses which have been used to justify embryotomy on the viable child in the past. Personally I welcome the operation of symphysiotomy on this account.

Embryotomy.—Embryotomy has been an operation always hard to justify when done on the viable child. The Roman Catholic Church condemns it and holds the operator morally guilty of homicide. The decalogue condemns it. It has been justified on the ground that it is better to kill one than to permit two to die. This condition no longer exists, with the modern Cesarean operation and with pubiotomy recognized. It is no longer a question of killing one to save the other. With proper management both can be saved. I find myself in positive dis-

agreement with those who say that the *child* should not be considered, but only the *mother*, and who justify themselves by saying that without the intervention of art the child will die as surely as though its brain should be broken up by the perforator. The dictum of the profession, especially in England, France, and America, has so long been in favor of embryotomy that time and facts, and the earnest advocacy of a more humane and life-saving practice by those who are convinced that symphysiotomy and the Cesarean section should take the place of embryotomy on the viable child, will be needed to establish a better practice. That embryotomy on the viable child will soon be condemned as universally as it is now defended I do not doubt, and I hope that every one convinced of the rightfulness of this principle will speak out and disregard the traditions and prejudices of the past. If this be done the final day of the sacrifice of the innocents will be at hand.

I believe that practical men will still find a place for embryotomy. It will be done in preference to the Cesarean section or symphysiotomy:

1. On the dead child.
2. On human monsters and cases of hydrocephalus.
3. In cases *seen late* by the surgeon, when the fetus is believed to be non-viable, whether by long pressure from delayed labor or by undue or violent efforts at delivery by the forceps. In such cases embryotomy will be considered as against symphysiotomy or hysterectomy, and will, I believe, be elected at the present time.
4. In cases of labor remote from assistance. This class, however, should be sharply limited to emergency cases; and it is to be hoped that symphysiotomy will prove sufficiently easy of performance to supplant embryotomy in almost all such cases.

Conclusions.—1. Cesarean section in typical cases is a safe operation.

2. It should be performed preferably before labor, and not later than the first stage of labor.

3. The classical operation is to be preferred to puerperal hysterectomy in typical cases, because it is equally if not more safe, and because it preserves the fertility of the woman.

4. Puerperal hysterectomy is to be preferred in certain atypical cases: (a) Cases, seen late, in which infection of the birth canal and atony of the uterus are to be feared. (b) Infected

cases. (c) Cases complicated by large fibroid tumors of the uterus.

5. Symphysiotomy will probably supersede Cesarean section done for the relative indication.

6. Embryotomy is no longer justifiable on the living viable child as an elective operation.

2134 HANCOCK STREET.

TOTAL EXTIRPATION OF THE VAGINA FOR CARCINOMA.¹

BY

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(With three illustrations.)

PRIMARY carcinoma of the vagina is so rarely seen that it has been customary of late to publish every case met with in detail. It is desirable that this should be done also for other reasons. The prognosis of the disease is particularly grave; the operative treatment has only been developed of late, and is thus as yet *sub judice*. Thus I concluded, in connection with a case I have met with, to present a brief review of the subject to the Society.

Synopsis.—Primary vaginal carcinoma of four to six months' standing. Large tumor on posterior and left wall. Multiple smaller tumors all over the remainder of the vagina. Extension to the surface of the vaginal portion of the uterus. Total extirpation of the vagina and removal of vaginal portion. Recovery from the operation. Relapse *in loco* two and a half months later. Nephritis. Sent home as incurable.

History.—Mrs. C., of Cedar Falls, Iowa, 60 years old. A grandfather died of cancer of the tongue, an aunt had cancer of the breast. She has six children; the youngest son is now 18 years old. After the first child, thirty years ago, descent of the uterus followed, never causing any serious inconvenience. She has always been a strong and very active woman. Meno-

¹ Read before the Gynecological Society of Chicago, July 22d, 1892.

pause came fifteen years ago, at the age of 45, accompanied with irregular hemorrhages which soon ceased entirely. She was perfectly healthy in the following years. The present illness began six months ago, in August, 1891. At this time she fell from a hammock, striking on the gluteal region, and suffered severe pain; but she could walk, was not confined to bed, and the pain soon disappeared. Two months later she noticed a purulent, odorless discharge from the vagina, which, after some weeks, showed streaks of blood. In October, 1891, she first noticed some pains in the pelvis when she had been on her feet for an unusually long time or taken a long walk: in ordinary daily life she would never feel any pain. Her appetite has been good till a few weeks ago, when she became alarmed about her condition. Bowels were regular, and she has had no symptoms from the bladder until a few weeks ago, when occasionally more frequent urinating was noticed, but not accompanied by pain. The husband thinks that she has lost some in weight and grown pale in the last two months. She herself thinks that she has not emaciated any. A week ago she went to her family physician, who made a careful examination, declared her disease to be of a serious nature and advised her to consult a specialist in Chicago. The digital examination of the vagina was followed by some hemorrhage and pain, and travelling twenty-four hours in a sleeping-car aggravated these symptoms, enough to prevent her from sleeping on the train.

I examined Mrs. C. on January 30th, 1892. I found her a strongly built woman, moderately well nourished, rather pale, although she had lost no blood to account for this; her expression was nervous and anxious. Heart, lungs, abdominal organs, urine, pulse, and temperature were normal.

Vaginal examination revealed a large, hard, nodulated tumor on the posterior and left vaginal wall. It began a half-inch from the introitus, extended upward two and a half inches; its transverse diameter was two and a half to three inches; its borders elevated and hard, the surface uneven, partly ragged, with crevices giving it a cauliflower appearance. From the posterior and left lateral wall of the vagina it extended up into and filled the posterior lacunæ and left lateral fornix. Its apparent thickness was one-half to three-fourths of an inch. Above this tumor no distinct vaginal portion of the uterus could be felt (she was an old woman with small, senile atrophic uterus), but the external

os was found one-half inch above the upper border of the tumor. The place of the vaginal portion felt uneven, as if not covered with smooth mucous membrane, but like an ulcerated or excoriated surface. Close to the borders of the large tumor were a number of flat, rather smooth, roundish nodules or plaques, one-half to one inch in diameter, occupying the right vaginal wall, the right fornix, and anterior vaginal wall, all around the place of the vaginal portion of the uterus. The wall of the vagina between these tumors and the surface of the vaginal portion was not smooth but velvety or warty, rough, uneven, most so nearest to the tumors, gradually becoming smooth out toward the labia minora and in the region of the urethra. The anterior upper triangle of the vagina—that is, the urethral protuberance—felt smooth, and was the only portion of the vagina that was normal.

Combined Rectal and Vaginal Examination.—The tumor on the posterior vaginal wall was three-fourths of an inch thick all over; the wall of the rectum was smooth, soft, and movable against the posterior surface of the tumor. Above the upper border of the tumor was felt the small, freely movable uterus; the lateral ligaments were apparently not thickened and were free from nodules. However, on the left side, where the tumor reaches highest up, there appeared to be somewhat less mobility of tumor and uterus than on the right side. There was no infiltration of the perirectal or inguinal lymph glands.

Diagnosis.—Diffuse malignant tumor (carcinoma or sarcoma) of the whole vagina, extending to the vaginal portion of the uterus; doubtful extension to the left broad ligament.

Plan of Operation.—If, in narcosis, extension to left broad ligament is found, sacral operation for total removal of uterus and vagina; if no extension to broad ligament, total extirpation of the vagina and amputation of the lower cervix from the perineum. Preparation for the operation as usual for vaginal extirpation of the uterus.

Operation on February 8th, 1892, in the presence of the physicians of the Chicago Polyclinic, assisted by Dr. Gudden, of Oshkosh, Drs. Bernauer, Waters, Brougham, and others. Ether narcosis. Examination in narcosis showed condition as stated above, but I found both lateral ligaments freely movable and not infiltrated; uterus small and movable, slightly drawn to the left from shortening of the left fornix vaginae. The utero-

rectal ligaments and anterior rectal wall were found apparently normal and freely movable. I thus decided on extirpation of the vagina by perineal incision.

The patient being in the lithotomy position, the vagina, held open by Sims' speculum, was found narrow; therefore I divided the left side of the perineum, as is usually done in the vaginal extirpation of the uterus. The surface of the large tumor was scraped off with a sharp spoon, and whitish, friable, medullary masses of tumor tissue removed. This was followed by irrigation with two and one-half percent carbolic acid and rubbing off the vaginal wall with carbolized gauze sponges. A transverse incision (see dotted line in Fig. 1 [8]), three or four inches long, was made in the perineum between the anus and the vulva, between the two tubera ischii. The posterior vaginal wall was separated from the anterior wall of the rectum. Dissection with blunt instruments, scalpel handle and scissors, ligating vessels when divided, was made to a depth of three or four inches till above the upper border of the large tumor. The wall of the rectum was in some places denuded almost to the mucous membrane. The dissection was made guided by the left index finger in the rectum, and the posterior vaginal wall grasped by forceps and held upward by an assistant.

Lateral incisions (Fig. 1 [9]) were now made on each side of the vagina from the transverse incision upward, along the introitus, into the labia minora. The left and right vaginal walls were dissected off with blunt instruments, as above stated, up to the lateral fornix or lower border of the broad ligaments. The vaginal portion of the uterus was now grasped with American bullet forceps, so as to move, pull down, to the right or left the cervix, to bring into view the paracervical tissues, and facilitate step ligature of the paracervical tissue or the lower portion of the lateral ligaments—as in the vaginal extirpation of the uterus—from the lateral border of the lacunæ upward and inward till the wall of the neck was reached. Before taking in a new amount of tissue to ligate *en masse*, it was carefully ascertained, by touch with the finger, that the tissue to be ligated was not hard and infiltrated, and that it was some distance off from the tumor or nodules.

In this manner the vaginal wall was loosened in both lateral and posterior lacunæ till close to the vaginal portion of the uterus, and cut off from the posterior lip and sides. The vagina

was now attached to the anterior lip, and posterior wall of the bladder, and the urethra only. With a catheter in the bladder as a guide, a semicircular incision was made through the vaginal wall close to the anterior lip of the vaginal portion of the uterus. The vagina was dissected off or separated from the posterior

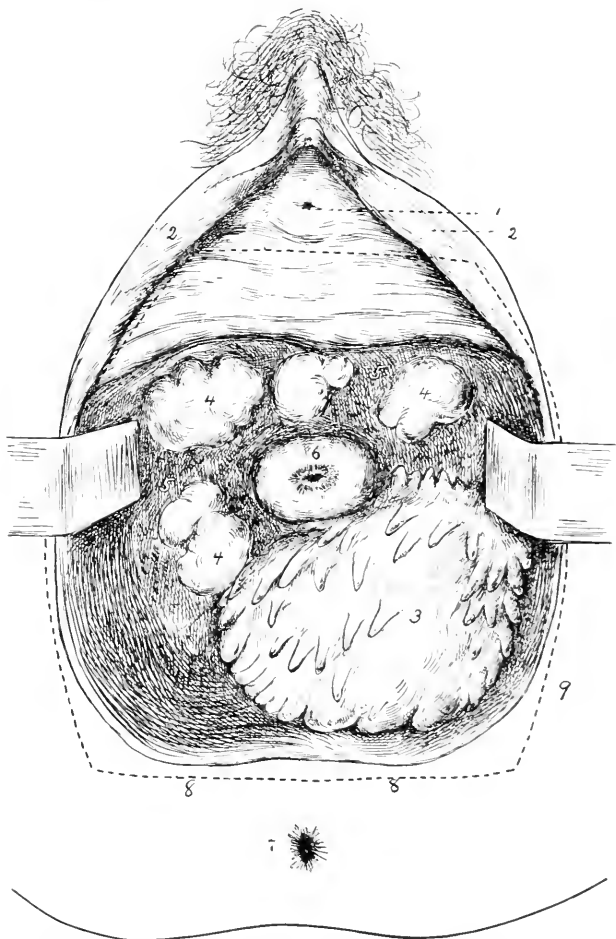


FIG. 1.—1, external orifice of the urethra; 2, labia minora; 3, large tumor on the posterior and left vaginal wall; 4, smaller flat tumors; 5, excoriated mucosa between the tumors; 6, the vaginal portion of the uterus with excoriated mucosa; 7, anus; 8, perineal incision; 9, perivaginal incisions.

wall of the bladder with blunt instruments, beginning at the right lacuna, working up toward the urethra and to the left, the vaginal portion of the uterus being pulled strongly down toward the perineum, and the already loosened walls of the

vagina being held or pulled upward against the symphysis pubis. This separation of the anterior vaginal wall was continued until the territory occupied by the flat tumors and the velvety, uneven mucosa was passed and normal, smooth vaginal wall was reached. After cutting off the anterior vaginal wall in the region of the urethra, and after removal of the vagina, there remained only a small anterior triangle of vaginal wall covering the urethra and extending out to the anterior half of the labia minora (see Fig. 1). To get still further away from suspicious velvety vaginal mucosa, the posterior portion of the triangle was denuded of its mucosa and immovable submucous tissue, removing it by scissors in strips, as in the old operations for lacerated perineum, and going as deeply as possible without opening the urethra, guided by the catheter. Careful palpation of the wound surface failed to detect any infiltrated places or lymph glands anywhere.

As the mucosa on the vaginal portion was diseased, and possibly this surface affection extended up into the mucosa of the cervix, supravaginal amputation of the cervix, or rather Schröder's operation, had to be the final step in the total extirpation of the vagina; curetting of the uterus and disinfection of the cavity with tincture of iodine and iodoform. After bilateral incisions about one inch in length and separating the halves of the cervix, it was seen that the cervical mucosa was healthy from one-quarter inch above the external os. The vaginal portion was cut off with the wall of the cervical canal to one inch above the os, and the cervical wound surfaces folded on themselves by two sutures for each of them, to stop hemorrhage. Inspection of the wound and final arrest of hemorrhage by a few ligatures were followed by a cleaning with gauze sponges moistened in two and one-half per cent solution of carbolic acid. No union of wound surfaces was attempted, except that the middle portion of the perineal incision was drawn together for about one inch in the median line: this was made to bring the anal opening out of almost direct contact with the perivaginal wound surface. The place of the vagina was loosely packed with sterilized iodoform gauze, and a voluminous antiseptic external dressing held by a T-bandage.

Remarks.—Hemorrhage during the operation was easily controlled and inconsiderable. During the extirpation of the vaginal wall in the right posterior fornix I made an opening into

the peritoneal cavity one-half inch in diameter, through which omentum protruded. It was at the time closed by a mass ligature.

The operation lasted one and one-half hours. Toward the end of the operation the pulse became 120 and weak, necessitating subcutaneous injections of camphorated oil and digitalis. I considered it dangerous to do any more operating then, and gave up the intended vagino-plastic operation; to cover the wound with paravaginal mucous membrane and skin would have required at least one-half hour's time.

Course after the Operation.—In five weeks she was able to sit up and had regained the same strength as before the operation. Irritation of the bladder, frequent micturition without any abnormal condition of urine, followed in the third week; later on the urine contained albumin and a few casts, probably indicating amyloid nephritis.

March 23d, forty-four days after the operation, I wanted to make the vagino-plastic operation. She was anesthetized and placed in the lithotomy position. A narrow, funnel-shaped, granulating cavity leads up toward the uterine; in the upper portion it was so narrow as to scarcely permit the tip of my finger to pass. The granulation surface was apparently normal and was scraped off with a sharp spoon. After disinfecting irrigation I tried to dilate laterally, with blunt instruments, out toward the tubera ischii. In so doing I made a tear through the thin posterior wall, opening into Douglas' fossa, from which a flap of omentum immediately prolapsed. The opening, about one inch in diameter, was loosely packed with iodoform gauze after replacing the omentum. I desisted from the plastic operation, as this is always followed by some suppuration, and packed the vagina with iodoform gauze. She was kept in bed for three weeks.

April 20th she had been out of bed for a week, and thought that she was gaining strength. However, she looked pale and cachectic. Albumin and casts in the urine indicated chronic nephritis.

Now, seventy-two days after the extirpation of the vagina, examination reveals the following condition: Vulva normal; entrance to the vagina narrow; slight odorless secretion; no pain; a finger passes in two inches; at a height of one and one-half inches is a constricting ring, through which the end of the

index finger narrowly passes into a larger space, the bottom of which can be felt, but the uterus cannot be distinctly made out.

Rectal examination shows a nodule the size of a hazelnut on the anterior wall of the rectum, one and a half inches above the sphincter ani. About one inch higher up, in the left broad ligament, is a diffused, hard thickening and a movable nodule the size of an almond. Thus there was relapse of the carcinoma *in loco* in these two places. I did not consider her a fit subject for further attempts at a radical operation, especially on account of the nephritis, and she left for her home.

Description of the Specimen (see Figs. 1, 2, and 3).—1. The large tumor on the posterior and lateral wall, extending from the vulva to near the vaginal portion of the uterus, is two and three-fourths inches long, two and three-fourths inches broad, and one-half inch thick. Its surface is irregular, ragged (from scraping with the sharp spoon), in some places papillomatous.

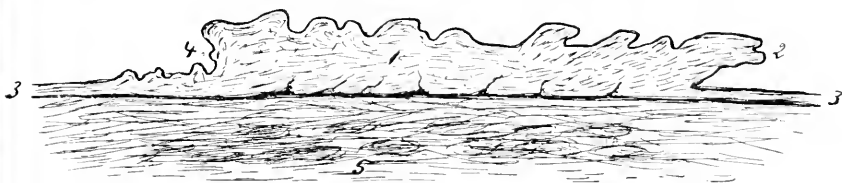


Fig. 2.—Section through the large tumor and post-vaginal tissue; 1, the large tumor; 2, its borders overlapping the surrounding vaginal wall; 3, vaginal wall; 4, papillomatous or wart like thickening of the vaginal mucosa near the large tumor; 5, the post-vaginal connective and adipose tissue.

Its borders are elevated, or even overlapping the surrounding vaginal mucosa (Fig. 2 [2]). The rectal surface is apparently free from infiltration in the loose connective tissue and adjoining tissue that covers it.

2. The smaller, flat, sessile, round, nodulated tumors on the right wall, right fornix, and anterior wall of the vagina appear like conglomerations of three to five smaller tumors. There are four such conglomerate tumors (Fig. 1 [4]). They are whitish or red, rather smooth on the slightly elevated surfaces, as if covered with a distended, not ulcerated, mucosa.

3. The vaginal wall between the tumors and on the vaginal portion is uneven, velvety or warty, as the surface of a mole or flat wart on the skin, or like the surface of the skin in ichthyosis (see Fig. 2 [4]). In other places it is excoriated, looking like the finely ragged bottom of a tuberculous ulcer (see Fig. 1 [5]).

Microscopical Examination.—1. Large tumor. Transverse section shows no epithelium; irregular nests and islands of large pavement-shaped epithelial cells with large nuclei, oval, round, or irregular; no *Stachel* or *Riffzellen*; no canceroid pearls. The carcinoma islands extend down into the muscularis, where they become smaller and are surrounded by a zone of granulation tissue. In the deeper layers of the muscularis there are no carcinoma nests, but all the way through there is an interstitial infiltration with embryonal cells or leucocytes, especially in the perivascular spaces. This infiltration extends beyond the muscularis into the paravaginal connective and adipose tissue.

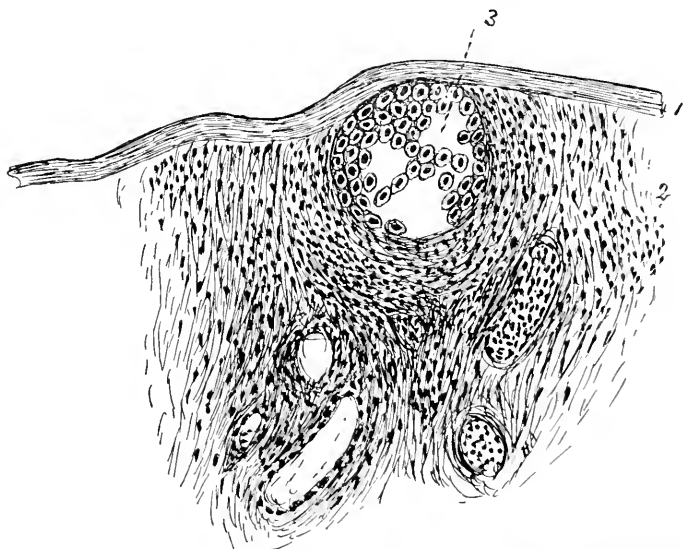


FIG. 3.—Microscopic section from the vaginal portion of the cervix: 1, thin layer of pavement celled epithelial covering; 2, the mucous membrane, in which, close to the surface, lies 3, a small carcinoma island.

2. The flat tumors are mostly covered with a thin layer of epithelium, under which is a layer of carcinoma tissue; the islands of this are mostly longitudinal and arranged perpendicularly from the surface down to the muscularis. In the latter are here and there smaller, round carcinoma nests embedded in granulation tissue, but on the whole the line between tumor and subjacent tissue is well defined, showing little tendency to rapid invasion of the surrounding tissues. Through the whole wall is a considerable interstitial infiltration with leucocytes.

3. The vaginal portion (see Fig. 3). A thin layer of pave-

ment-celled epithelium is found in some places ; but mostly there is no epithelium, and the mucosa is naked, with an irregular surface from which the mucous glands with their cylindrical epithelium extend down. There is no proliferation of the epithelial cells in the glands. In a number of sections I find in one only a small but typical round nest of pavement-shaped epithelial cells immediately below the epithelium (a carcinoma island) (see Fig. 3 [3]). The muscular wall of the vaginal portion shows some perivascular interstitial infiltration with leucocytes, especially near to the mucosa, but not nearly as prominent as in the vagina.

Remarks.—The tumor is a large-celled, pavement-celled carcinoma. The tumor territories are rather well defined, which might indicate relative benignancy from little tendency to diffusion. On the other hand, the diffused interstitial infiltration of the surrounding tissue with leucocytes, a lymphangitis, possibly from infection through the denuded vaginal wall, signifies malignancy, as it favors rapid extension through invasion of the lymphangitic areas by carcinoma cells. We see this condition in some cases of carcinoma of the breast, where a not well-defined redness and a slight swelling of the surrounding skin indicate a lymphangitis, often, but not always, mixed carcinomatous and septic. This condition is so ominous as to absolutely contraindicate operating in the great majority of cases. The diffused velvety or excoriated appearance of the vaginal wall signifies not merely a surface inflammation, but also extension of the carcinoma to, or implantation of the carcinoma cells in, parts of the surface distant from the visible tumors (see Fig. 3 [3]). The whole of such a wall or surface surrounding a carcinoma must consequently be removed.

PRIMARY CARCINOMA OF THE VAGINA. *Definition.*—Carcinoma of the vagina is common enough if we count the carcinomata which originate in the cervix or vaginal portion and secondarily extend down into the vagina. Of a primary carcinoma of the vagina we must require that it originates in the vaginal wall proper. It may extend to the vaginal portion secondarily ; and it may be difficult in a late extensive case to trace the place of primary origin, especially in the diffused, infiltrating forms when the tumor extends up into the cervical canal. Such cases should not be counted as primary vaginal carcinomata.

Forms.—As in the sarcomata, so we find two forms of vaginal

carcinoma: the localized, papillary, so-called canceroid, and the diffused, scirrhus or medullary carcinoma. The localized carcinoma, or canceroid, forms well-defined, circumscribed, flat, sessile, or more globular prominent tumors in the mucous membrane proper, or rather in the surface of the mucosa, often with raised or overlapping borders, with a papillary, lobulated, cauliflower-like surface, often covered with cockscomb-like protuberances.

The diffused, infiltrating carcinoma transforms the vaginal wall into a stiff, narrowed tube. It has a smooth surface before epithelial necrosis takes place. Its seat is essentially in the deeper parts of the mucous membrane and submucous tissue. It has no elevated or well-defined borders, but forms a diffused thickening of the vaginal wall.

Frequency.—Vaginal carcinoma is a rare disease. Küstner¹ could collect from the literature in 1875 only twenty-four cases, to which Preuschen² in 1883 added nine, making in all thirty-three. If we count the nineteen cases of West³—about which Preuschen and Küstner say that it is doubtful if all of them were primary vaginal carcinomata—and add one case from Meyer,⁴ one from Teuffel,⁵ one from Menzel,⁶ one from Grammaticati,⁷ and my case, we get a total of fifty-seven cases. The scarcity of vaginal carcinoma is the more remarkable when contrasted with the frequency of carcinoma of the uterus. As an example, it has been calculated that not less than five thousand to twenty-five thousand women died of uterine carcinoma in England during a period of fourteen years, from 1847 to 1861⁸ (Simpson, Schröder, Preuschen). One-third of the carcinomata in women are located in the uterus (Schröder); of four hundred and forty-one carcinomata in both sexes, one hundred and thirteen were uterine (E. Wagner).

Etiology.—1. Gravity and childbirth undoubtedly exert a potent influence on the origin of carcinoma of the uterus. Gus-

¹ Küstner, *Archiv für Gyn.*, Bd. ix., p. 279.

² Preuschen, "Real-Encyclopedie der gesammten Heilkunde," v. Eulenberg. Bd. xiv., Bogen 19 to 27, p. 368. *Vagina*. Edition of 1883.

³ West, "Lehrbuch der Frauenkrankheiten," 1870, p. 829; cited from Preuschen, l. c.

⁴ Meyer, *Zeitschrift für Geburtshilfe und Gyn.*, Bd. xxii., H. 1, p. 179.

⁵ *Centralblatt für Gyn.*, 1885, No. 19, p. 345.

⁶ Menzel, *Centralblatt für Gyn.*, 1885, No. 16, p. 244.

⁷ Grammaticati, *Centralblatt für Gyn.*, 1885, No. 16, p. 243.

⁸ Gusserow, "Ueber Carcinoma Uteri," *Volkmann's Samml. klin. Vorträge*, No. 18, 1871.

serow has calculated, for four hundred and fifty women suffering from uterine carcinoma, 5.19 as the average number of children for each. Küstner found for twenty-four women with vaginal carcinoma an average of only 2.8. Preuschen seeks the explanation of this difference in the fact that the vagina takes no active part in gestation as compared with the uterus, and, further, that the traumatism to the uterus during childbirth is much greater than to the vagina proper. Laceration of the cervix or vaginal portion is almost physiological, whilst partial ruptures of the vagina, excluding the perineum as belonging to the vulva, are rarely found—according to Winckel, in one to one and a half per cent of births.

2. *Pessaries*.—Continued traumatism from pessaries, perhaps ill-fitting, sometimes forgotten in the vagina and left for many months or years, will occasionally determine the location of a vaginal carcinoma. Morgagni (Preuschen) saw two almond-shaped indurations in the vagina caused by a pessary. Hegar¹ found in a woman of 56, who died later with general carcinosis of the abdominal organs, two partly ulcerated carcinoma nodules, corresponding to the places where a closed Hodge pessary pressed against the descending ramus of the pubic bones. Kaltenbach² found in a woman of 35, who had used a Hodge pessary for a long time, a carcinoma high up in the posterior fornix where the posterior arch of the pessary had pressed. Meyer³ saw a woman of 60 who, for prolapse of the vagina, had used a Hodge pessary of celluloid and left it in continuously for over a year. A purulent secretion mixed with blood caused an examination to be made. Erosions were found on the posterior lip of the vaginal portion and on the posterior vaginal wall. They healed in a few weeks, and later the pessary was reintroduced. Six months afterward the discharge returned, and there was now found, one and a half inches behind the posterior lip, a flat red tumor, one inch in diameter, filling the posterior fornix, elevated five to six millimetres above the vaginal surface, soft, lobulated, with beginning ulceration on the surface. Another smaller tumor of the same character was seen lower down on the middle third of the posterior vaginal wall, in the place where

¹ "Operative Gynecology," 3d edition, 1886, p. 183.

² Kaltenbach, *ibid.*

³ Meyer, "Zur Etiologie des Scheidenkrebses," *Zeitschrift für Geburtshilfe und Gyn.*, Bd. xxii., p. 179.

the tumor in the fornix lay in contact with it. Microscopic examination showed the tumor to be carcinoma. At the attempted local extirpation it was found that the upper large tumor extended both to the vaginal portion and the cervix and to the posterior parametrium; thus vaginal extirpation of the uterus was combined with removal of the diseased part of the vagina.

In favor of the probability that pessaries may cause carcinoma are some observations reported by Küstner, who saw a thickened border of epithelium, and even small warty excrescences, surrounding the places of pressure atrophy caused by pessaries, and these places were sometimes very obstinate in healing.

Prolapse of the uterus and vagina does not seem to predispose to the disease. Cohabitation is in this respect uncertain. Three of Küstner's nulliparous patients were not married. As to age, the vaginal carcinoma is most common in the fourth decennium; next comes the sixth, and then the fifth and third. One case was in a child 9 years old, one between 5 and 10, one between 10 and 20. The uterine carcinoma has its greatest frequency in the fifth decennium, followed by the fourth and sixth; consequently the most common period is about ten years earlier for the vaginal than for the uterine carcinoma.

Heredity was noted in two cases. Baldwin's¹ patient stated that her father and grandfather had died from cancer. My patient had a grandfather and an aunt affected with carcinoma, respectively of the tongue and of the mammary gland.

The seat of the carcinoma is in the great majority of cases the posterior vaginal wall. It was so found in ten of Küstner's twenty-seven cases, in ten of Preuschen's eleven cases, in Teuffel's, Grammaticati's, Menzel's, Meyer's, and my case, or in twenty-five out of thirty-nine cases. In two cases it occupied the lateral wall, and in two cases (of which the one of West is doubtful, whilst Baldwin's patient had a carcinoma the size of a walnut near the urethra) the anterior wall. In several of the cases of large, apparently circular tumors there was found a narrow rim of healthy vaginal wall extending from the anterior lip of the vaginal portion to the introitus vaginae, proving that the place of origin was the posterior wall (Küstner). Preuschen sees the cause of this predilection in the relation between the posterior vaginal wall and the vaginal portion with

¹ Baldwin, Philadelphia Medical Times, 1870, p. 15.

the os. An enlarged vaginal portion rests and moves against the posterior wall, where the secretions from the uterus are, so to say, rubbed into the mucous membrane constantly during movements of the body or contraction of the abdominal muscles, especially where the uterine ligaments and vaginal wall have lost some of their tonus.

Symptoms.—Hemorrhage, purulent discharge, and pains are almost invariably found. Hemorrhage is an early symptom (Preuschen). Küstner states that hemorrhage is present in eight out of twelve cases. It is often caused by cohabitation, and a small tumor may be made to bleed easily in this way, as smaller papillomatous excrescences are often very vascular when carcinomatous. Difficult defecation in a constipated patient will sometimes start the hemorrhage. A discharge of purulent or watery secretion not tinged with blood, from the ulcerated surface, is more rare; it was present in two of Preuschen's twelve cases. More common is a purulent secretion with streaks of blood, the quantity of which is increased by coitus, exploration, or defecation. Pain was regarded as an early symptom by West. Küstner found pain absent in one-half the cases. In one case painful coitus was the only symptom. It is often not till late in the disease that pain becomes a prominent symptom. It is then often aggravated by defecation, which causes pressure upon and protrusion of the posterior vaginal wall, where, as we saw, the oldest and often ulcerated portion of the tumor is found. Invasion of the bladder causes urinary tenesmus and frequent urination. A dull pain deep down in the pelvis, and a feeling of pressure downward, come on late in the disease.

Course.—The vaginal carcinoma shows a tendency to early necrosis and rapid extension locally as well as to adjacent organs, first to the lymph glands in the paracervical connective tissue, and later to the inguinal glands when the disease extends down near the vulva. The rectum and bladder are invaded later on, fistulae form, and the vagina forms finally a large cavity, in which feces and urine pass over the ulcerated surface, and the horrible condition so well known in cases of cervical carcinoma makes the patient an object of pity. Diffuse carcinosis of the peritoneum is more common than metastases in distant organs.

Diagnosis.—When the symptoms have called for a digital examination of the vagina it is usually easy to diagnose a malign-

nant tumor. But as the sarcoma presents nearly the same appearance as the carcinoma, a differential diagnosis between the two can only be made by microscopic examination. It is of the utmost importance to regard any erosion caused by a pessary with suspicion, especially if it is surrounded by thickened or papillary, uneven epithelium, and if it persists in spite of removal of the pessary and ordinary antiseptic treatment.

Treatment.—Complication of gravidity with carcinoma. Diffused or annular carcinoma usually causes so much retraction of the vagina as to prevent delivery. Roulston tried to dilate the carcinomatous vagina with sponge tents when the labor pains had already commenced. It required three days of dilatation before a finger could be passed through the stricture and feel the normal os. The patient died nineteen days later, not delivered, and the autopsy revealed a dead but normally developed child at full term. Cesarean section would, as Preuschen remarks, probably have saved the child and possibly prolonged the life of the mother. An isolated tumor on the posterior vaginal wall, even a voluminous one, may, especially in a multipara with lax vaginal wall, as in Bailly's case, be pushed out of the vagina before the child's head, and retreat back again into its old place after delivery. When the carcinoma is diagnosed before the time of delivery it should, according to Schröder's advice, be extirpated during the pregnancy, if it cannot be easily pushed out of the vagina by the child's head.

Induced labor at the fifth month was resorted to in a case reported by Küstner. A considerable quantity of carcinomatous tissue was first removed by curette, followed by carbolized injections. No reaction ensued. Eight days later labor was induced by an elastic catheter in the uterus; spontaneous expulsion of a dead child. Septicemia followed and caused death on the seventh day.

Martin succeeded in dilating a carcinomatous vagina sufficiently to permit of extraction of the child by forceps. After delivery of the placenta, and after contraction of the uterus had taken place, he shelled out the tumor at its base. The patient recovered and the place of the carcinoma healed over, but general carcinosis caused death after one year. In this case the carcinoma was not a diffused one, as there was a free space on the anterior vaginal wall two finger-breadths in diameter.

Radical removal of a vaginal carcinoma should always be

attempted if practicable. It has been performed a number of times in cases of circumscribed tumors, but only once in a diffused carcinoma, by Schröder, in addition to, or before, the case operated on by me.

Circumscribed carcinomatous tumors have been removed by the galvano-caustic loop. Spiegelberg and Grünewald recommend the method. Grünewald's patient was operated on for a secondary tumor on the posterior vaginal wall—a relapse after a primary carcinoma of the cervix which had been amputated six months before. Toward the end of the operation a severe hemorrhage occurred and proved fatal in six minutes, before it was possible even to ascertain the source. The autopsy showed that the anterior branch of the hypogastric artery, half the size of a goose quill, had been divided obliquely.

Excision of circumscribed tumors by knife was practised by Schröder in three cases of carcinoma on the posterior vaginal wall, as follows: Incision in healthy vaginal wall encircling the tumor, and through the whole thickness of the wall, was followed by dissection from above downward, thus removing the carcinoma from the subjacent tissues. In one of the cases the posterior lip of the cervix was also removed. An opening into the Douglas fossa was closed by a ligature. One case died from sepsis, two others recovered. The vaginal defect is, if possible, drawn together by sutures and a drainage tube inserted behind the vagina. If the vaginal wound is so large as not to permit of union by sutures, then the hemorrhage is stopped by ligatures or thermo-cautery, and the wound packed with iodoform gauze.

The operations in the recto-vaginal septum should be guided by two fingers of the left hand in the rectum, and it is thus possible to feel that no carcinoma nodules are left.

Operation for diffused carcinoma was first performed by Schröder.¹ In an elderly woman with a carcinoma that extended over a large portion of the vagina, he removed the whole of the vagina and the cervix, operating from below upward, dissecting out the vagina like the finger of a glove. The wound surface was cauterized with a Paquelin burner, and an iodoform-gauze tampon inserted. The patient recovered from the operation, but relapse *in loco* speedily followed.

¹ Schröder: "Handbuch der Krank. d. weibl. Sexualorgane," 6th edition, 1884.

Removal of the vaginal carcinoma combined with total extirpation of the uterus was done by Meyer in his case related above. This procedure was indicated by extension of the carcinoma to the cervix.

If the lateral parametrium is invaded and the infiltration extends up into the lower portion of the broad ligament, we would have, if we concluded to attempt removal at all, to resort to total extirpation of vagina and uterus by the sacral method.

The prognosis of the operation by knife, even in the most extensive cases, is good, as far as the immediate results are concerned. Asepsis, drainage, and packing with iodoform gauze proved efficient to insure relative asepsis and recovery from the operation in Schröder's, Meyer's, and my own case.

As to permanent cure the prognosis is exceedingly grave. Breisky, in 1886, stated that all operative attempts had proved futile, and it may be said that no observations since then have proved that there are exceptions to this sinister rule.

A local relapse, a continuance of growth, is often reported, coming on very rapidly. In Martin's first case a local tumor was felt twenty-seven days, in my case seventy-two days, after the operation. But in other cases, if not a radical cure, at least temporary comfort and prolongation of life have been seen. Menzel's patient was well for one year and three months, when a relapse of the purulent discharge was reported, and makes a relapse probable. The remaining cases have been reported too short a time after the operation to permit of any conclusions as to the future fate of the patients.

The future of operations for vaginal carcinoma will depend upon early diagnosis and extensive operating. As Breisky states, only very few cases have as yet come to be operated on at a period when there was any chance for removal. It is to be hoped and expected that when we operate away off from the tumor, as Kaltenbach advises, irrespective of rectum and bladder, defects of which can be made to heal by careful suturing, better results and some radical cures may be recorded for carcinoma in the vagina as well as in other parts of the body.

UMBILICAL HERNIA IN THE FEMALE.

WITH A REPORT OF FIVE CASES.¹

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(With five illustrations.)

HERNIA and its treatment has been so thoroughly discussed in the medical societies of New York City during the past two or three years by such able men as McBurney, Bull, De Garmo, Marey, and others, that any attempt on my part to add to the literature of the subject would simply be an effort to accomplish a difficult task which when completed would, I am afraid, only have taxed your patience. I shall therefore confine my remarks to the treatment of one or two varieties, although I am safe in saying that the method I shall advocate is one readily adaptable to the treatment of all forms of hernia with which we meet.

It is a noticeable fact, brought vividly to one's mind in looking over the statistics of operations for hernia, and especially those compiled by general surgeons, that one of the most important, and surely not an infrequent, form has been lightly passed by or honored only with a passing remark: I refer to ventral or umbilical hernia, most frequently met with in women during the child-bearing period, and also of late years as an after-occurrence in laparotomy work.

Why such an important condition should have been so lightly treated I am unable to say, except that it may be because the custom for half a century has been to look lightly upon umbilical hernia, prescribe some method of supportive treatment, and allow the poor woman to carry her affliction until some unfortunate occurrence strangulates the hernia, which in the great majority of cases does not occur till years after it makes its first appearance; then she is made to suffer the torture of treatment by taxis until the time has passed when operation for radical cure

¹ Read before the American Gynecological Society, September, 1892.

can be safely done; hence the mortality in these operations. I do not mean to contend that we should therefore advocate radical operation upon every case of umbilical hernia with which we meet, for in adopting treatment we must constantly bear in mind the clinical history of each individual case, the sex and age of the patient, and the causes and conditions which favor or retard its cure. For if in the infant male, if properly treated by support, they disappear and seldom return, while in the adult male they are rare; but if in the infant female, they often again make their appearance in later life and not infrequently give rise to distressing symptoms, especially during the child-bearing period; and, as it is a purely mechanical difficulty, when once well established in a woman of mature years it is a permanency until relieved by radical treatment. De Garmo, in his able paper, says: "The sooner the entire profession realizes this the sooner will prompt relief be afforded those afflicted."

In my judgment one of the influences that have served to bring about a change of opinion with respect to the treatment of umbilical and ventral hernia has been its frequent occurrence after laparotomy, as ventral hernia from such a cause is not only a more distressing but a much more dangerous condition, owing to the difficulty of restraining it within bounds; for I have yet to see the invention, that can be worn by woman with ease and comfort, that will retard the gradual increase of a ventral or umbilical hernia when once the *linea alba* has given way.

My object in this brief paper will be, therefore, not to discuss methods of mechanical support as palliative treatment, but to describe and offer for your approval or disapproval a method of operation that I have employed in my last three cases, and which has seemed to me to attain the object we are all seeking for in the radical operation—viz., firm reunion of the parts that have given way; and I believe the method has some advantages over those which have been in general use up to the present time, inasmuch as it does away with any form of buried stitch that is non-absorbent, while at the same time it allows of free drainage in case of failure to secure union of the cellular tissue by first intention. I have studied the subject with care for the past four years, for my first operation for the radical cure of hernia was made in October, 1888, and I well remember the trouble it gave me to secure firm union of the severed parts; and holding the opinion, as I do, that Nature never has and never will be able to

produce scar tissue equal in strength and elasticity to her first production, the normal linea alba, I believe that in adopting a method of radical treatment especially for the relief of herniæ subject to so much direct pressure as either ventral or umbilical hernia necessarily is, we should, if possible, operate in such a manner as to secure good union by first intention rather than by granulation and scar tissue; hence, although the operation as performed by McBurney may be all-sufficient for an inguinal or femoral hernia, I should hesitate to adopt it for the relief of either navel hernia or that which follows in the wake of laparotomy. I am also opposed to the use of catgut as the supporting suture in this operation, owing to the uncertainty of its resistance to absorption; for I believe that I can trace two of the cases of ventral hernia that have occurred in my laparotomy work directly to the use of catgut that absorbed before firm union was secured between the cut surfaces of the linea alba.

Dr. Marcy, of Boston, whose experience with the use of kangaroo tendon has extended over years of time, speaks in the highest terms of this material for suture purposes in hernia. I have great faith in his judgment and experience, but I cannot speak from my own personal knowledge of the use of the tendon as a suture. The majority of the operators who have reported cases seem to prefer the use of catgut as a buried suture. Dr. A. P. Clarke, of Cambridge, Mass., claims that it is far the best material for such purpose. He dwells at length on the proper preparation of the suture by chromicizing it, notes the danger of having the catgut too hard or too soft, and contends that the use of wire sutures is not necessary and should not be encouraged, claiming that the wire suture sooner or later becomes a source of irritation and ulceration—conditions which necessitate its early removal.

Although I am a firm believer in the use of catgut in all cases where pressure or tension does not play an important rôle, I cannot coincide with the doctor's opinion with respect to its use in hernia, for my experience with the use of silver wire has been so diametrically opposite to his.

Several unique methods of operation have been reported. Among others I note one by Dr. J. Edwin Michael, of Baltimore, who sutured the linea alba with silver wire carefully twisted, covered with perforated shot, cut short, and left in position, closing the cellular tissue and skin over the stitches with

interrupted sutures, and the patient made a good recovery. Also one by Dr. H. Marion Sims,¹ who reports a case where he was obliged to make second laparotomy for hernia of enormous size, the circumference of the umbilical ring being ten inches. The intestines were matted within the sac, and the operation lasted four hours and seventeen minutes; one hundred and fifty bleeding points were tied. This patient recovered, and the result was a perfect one.

The method advocated by another operator, Lawson Tait, is so unique, and at the same time so difficult to understand without having seen it done, that I refrain from attempting to describe it here, and refer my hearers to the description of the operation published in the *British Medical Journal* of September 6th, 1891. His method is one that seems unnecessarily complicated and subjects the patient to unnecessary danger.

In March, 1891, before the New York Obstetrical Society, the subject of ventral hernia was thoroughly discussed in a paper by Dr. George M. Edebohl, in which he strongly advocates the flap operation for the radical cure, and advises doing it, if possible, without opening the peritoneal sac. My experience has led me to believe that this is a dangerous method to pursue, owing to the fact that in the majority of herniæ, not only ventral but umbilical, especially if of long standing, the protruding contents of the sac will be found quite firmly glued to the latter; and it is my belief that if we return the hernia to the abdominal cavity without opening the sac and freeing all adhesions, we subject the patient to an extra risk from peritonitis or intestinal obstruction. My experience has been limited to five cases, in all of which firm union had taken place between the sac and its contents, necessitating not only the performance of a complete laparotomy, but the removal of most of the omentum in all but one case. Especially will this be found to be the condition in cases of ventral hernia following laparotomy, which the following report of my first case, operated upon October 10th, 1888, will demonstrate.

CASE I.—Mrs. R. D., German, married, two children. Second laparotomy (my forty-first); the first was made one year previous and Hegar's operation done for uterine fibroid. Three weeks after returning home, while lifting a dumb-waiter loaded with coal, she ruptured the scar; large ventral hernia followed;

¹ AMERICAN JOURNAL OF OBSTETRICS, 1886, p. 272.

an abdominal supporter was adjusted, and she was kept under observation during the following year. The abdominal bandage gave but little support to the hernia and did not prevent it from increasing, while the removal of the appendages proved a failure as far as stopping the growth of the fibroid or preventing hemorrhage were concerned. Although both tubes and ovaries were completely removed, the patient had periodical hemorrhages which depleted her as much as formerly. After the lapse of one year careful examination showed that the tumor had actually increased in size, that her general condition had not improved, and that her former trouble was complicated by hernia; she was tired of such an existence and begged for relief. I readmitted her to the hospital and made hysterectomy, dissected out the linea alba from either side of the old scar, sewed the peritoneum together with a continuous catgut suture, and the linea alba with buried interrupted silk sutures; the cellular tissue and skin were united by a third row of sutures, silk being used. The patient did well after the operation, but convalescence was delayed by suppuration of two or three of the buried silk sutures, which caused cellular abscess, necessitating a reopening of the lower portion of the abdominal incision. The result, however, was a good one, and examinations at intervals of three months since that time show this patient to be in good health and the abdominal wall firm, although thin over the former incision.

The operation was a most difficult one, owing to the fact that the entire omentum, together with several coils of the small intestine, had become firmly attached to the anterior abdominal wall after the accident which ruptured the scar. This was the first case of ventral hernia that occurred in my laparotomy work, and, although I was in no way responsible for the accident, it was one I have since attempted to avoid by every means possible, but in spite of great care I have notes of two more cases that have occurred since and still exist.

CASE II. (Operated upon in January, 1890; my seventy-fourth laparotomy).—Mrs. D., English, age 90, married seventy years, mother of ten children. When I was called to see her she was suffering from strangulated umbilical hernia which was the size of a quart bowl. I would not pretend to say how many years this patient had suffered from the hernia, but am sure it was a great many. It had been strangulated a number of times before, but her physician had succeeded in returning it by taxis.

However, as usually happens in such cases, the hernia eventually became irreducible. Such was the condition when I was first called to see this patient at midnight. Many efforts had been made to reduce the hernia by taxis, but all had failed; and as the patient was very aged, more than 90 years old, with a heart trouble in which the pulsation intermitted at every third beat, it was evident that, unless some relief could be given her, she would not last more than a few hours. Her family physician, Dr. Schoonover, urged operation at once, although danger of death upon the table from heart disease was very probable. Under such circumstances the prospects of success were almost hopeless, but I concluded to make the effort. Ether was administered and the operation made by candle-light. She stood it fairly well, and was put to bed in a much better condition than we expected. Upon opening the sac it was found to contain all of the omentum and fifteen inches of the small intestine; the omentum was adherent to the sac throughout, and so thick and abnormal in appearance that it was considered best to remove it all, which I did. The intestines had been so long strangulated that they presented almost a mottled appearance; they were packed in towels wrung out in very hot water, and kept there until the congestion was so much relieved that I considered it safe to return them to the abdominal cavity; the wound was then treated as in the previous case, the linea alba being sewed up with interrupted buried silk sutures. It is surprising to me that this patient lived through the operation; however, as I have stated, she was put to bed in good condition. As is my custom, seidlitz powders were administered as soon as she came out from the anesthetic, and a good movement of the bowels secured during the first twenty-four hours; after that I confidently expected her recovery, as she had no rise of temperature or evidence of peritonitis. The heart still continued to intermit, and her family physician, hoping to stimulate it, administered ammonium carbonate; the stomach did not receive the remedy well, she at once sat up in bed, called for a bowl, ejected the medicine, and fell back dead. We could only account for such a sudden termination of life by deeming it heart rupture, as otherwise she was doing well.

CASE III.—Mrs. C. C., Newton, Mass., age 29, married, mother of two children; family history good. She had never suffered from any acute or constitutional disease, but while giving birth to her last child, two years ago, a hernia occurred at

the navel; it was not a large one, but sufficiently so to cause her some uneasiness and pain. When convalescent from her accouchement she consulted her family physician, who adjusted an ordinary belt-and-button supporter, such as is in general use for this form of hernia. She was quite fleshy over the abdomen, and the supporter only sufficed to steady the abdominal walls and prevent the hernia from spreading out beneath the cellular tissue. At various times she had some pain over the navel. In February of this year she consulted me concerning it, and I advised her to have the radical operation for its relief, feeling quite certain that in operating it would not be necessary to open

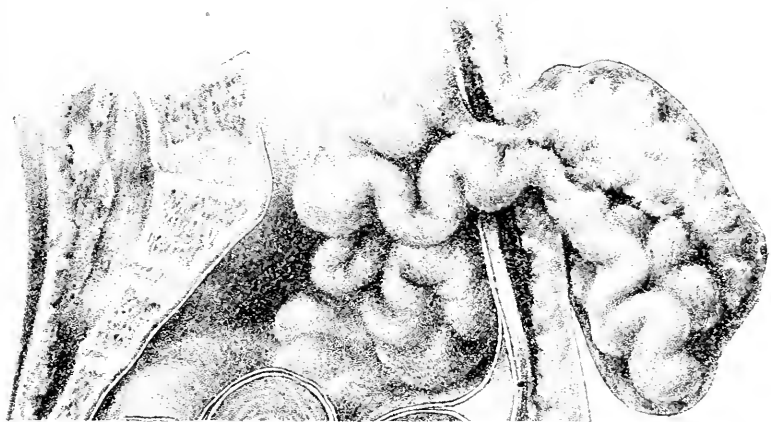


Fig. 1.—Umbilical hernia, showing adherent omentum covering over the intestinal coils.

the peritoneum, but only to go down and reunite the linea alba. She returned to her home, and some two months later wrote saying she wished the operation to be made.

Having had trouble with buried sutures in the first case of navel hernia upon which I operated, that experience, coupled with the knowledge I have since gathered in my laparotomy work of the different methods of closing an abdominal wound, determined me to use, if possible, some method of suturing which would bring the walls of the abdomen into close apposition, maintain them so as long as I desired, and would allow of removal. To this end I had been for some months previous waiting for some such case as this, that I might put into practice the following method of suturing, which, it seemed to me,

would accomplish the object I had in view; so that when this patient called for operation I went to her home prepared to do it and suture the parts by the method shown in the accompanying cut.

On April 13th, 1892, the patient was put under ether, and an incision about four inches long, extending two inches above and two below the navel, was made down to the sac of the hernia. It was then found that the pad supporter had been a useless appliance, which allowed, not the intestine, but the omentum to



FIG. 2.—Ventral hernial also showing characteristic position of adherent omentum over intestine.

extrude through the breach and dissect its way down under the cellular tissue for some two inches below the navel, where it had become adherent to the entire surface of the sac—a condition which I could not recognize before operation, owing to the amount of fat over the hernia. I was obliged to open the peritoneal cavity and break up the adhesions between the hernial sac and omentum before I could return the latter to the abdominal cavity and properly close the hernia. The sac wall was dissected free from the cellular tissue, cut away, and the peritoneum proper was then closed with a continuous catgut suture;

the two halves of the linea alba were then dissected out from the cellular tissue and brought into close apposition with a second row of continuous catgut sutures. When this had been accomplished four silver-wire sutures were introduced through the linea alba, taking care to include at least one-third of an inch of the muscle within the suture (Fig. 3). Each suture was then shouldered over the cut surface, after the method of Dr. Emmet in his perineal operation, so that the two halves of the linea alba were held in close apposition without traction. Over each suture a short canula, such as I show, was adjusted, pressed down firmly upon the suture, and held in position by a perforated shot upon the wire suture at the upper end of the canula (as shown in the cut). Cellular tissue and skin were then closed with interrupted salmon-gut sutures, allowing the four canulæ

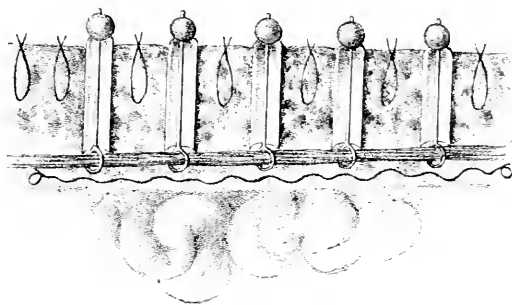


FIG. 3.—Method of suturing.

with their enclosed wire sutures to protrude between the cut surfaces about half an inch above the skin. The wound was then dressed by packing iodoform gauze about the four canulæ, building it sufficiently high to prevent pressure upon the latter by the abdominal bandage. The patient was put to bed and allowed to turn from side to side as she pleased. The bowels moved the following day with the aid of salines. On the third or fourth day she was allowed ordinary diet. She had no intra-abdominal disturbance whatever, and never a rise of temperature. When the dressings were removed, at the end of two weeks, it was found that the wound had healed throughout and was perfectly dry; the canulæ had not irritated the skin sufficiently to produce suppuration about them. On May 4th, just three weeks after the operation, I visited the patient, removed the canulæ, and withdrew the four wire sutures. A properly

fitting abdominal supporter was adjusted, and the patient allowed to sit up and move about her room. She has had no trouble since; I saw and examined her August 7th, and found her in perfect condition.

CASE IV.—Mrs. R., widow, age 46, mother of twelve children; family history good. Three years ago the patient first noticed an enlargement of the abdomen, which gradually increased, and she then commenced to wear a bandage for support. She gives no history of injury, though she vaguely remembers having fallen, striking upon the abdomen. However, this was several years before she noticed the enlargement.



FIG. 4.—Showing hernia with patient erect.

When seen by me she had an enormous ventral hernia, also involving the right semilunaris. The accompanying cut (Fig. 4) will show more clearly than I can describe the size and shape of the hernia; it was the largest one I had ever seen. The cellular tissue about the navel had become so atrophied that the vermicular action of the intestines could be distinctly seen through the transparent skin. The woman was laboring with a burden that was more than she could bear, and she craved any method of treatment that would give her relief. It was considered a hazardous thing to attempt a radical operation, but such was the only thing I could recommend for the patient. She gladly accepted it, and on May 5th of the present year she was put under

an anesthetic, and an incision nine inches long, extending from two inches above the pubes to five inches above the umbilicus, was made. The omentum was adherent along the entire line of incision, and I was obliged to remove a large portion of it before the walls could be brought into apposition. After cutting out an elliptical piece, about two inches wide and six inches long, from either side, the walls were drawn as closely together as possible and quilted by a continuous catgut suture: they were so much atrophied that it was almost impossible to get enough sound muscular tissue to cover in the hernia. In addition to the two



FIG. 5.—Showing shotted sutures after operation.

rows of catgut sutures, seven deep wire sutures (Fig. 5) were adjusted after the manner described in the previous case; the wound was then closed with interrupted silk sutures and dressed antiseptically. Although I did not expect this patient to live more than a few hours (for the operation was certainly a terrible one), she rallied well and went on to convalescence without any trouble except a slight suppuration around two of the cannulæ over the wire sutures; this I considered to be caused by the friction produced by the movements of the patient. At the present time, four months after the operation, the woman is in perfect health, with good union of the long incision, and, with the exception of a slight bulging over the linea semilunaris on the right side, she is relieved entirely of her hernia.

CASE V.—Mrs. McC., age unknown, widow, mother of several children, had suffered for a number of years from a navel hernia of large size. I was called to see her at 11 o'clock Saturday evening, June 18th, 1892, and found the hernia irreducible and strangulated; the intestine had been imprisoned since the Wednesday previous. She was a very fleshy woman, weighing more than two hundred pounds, and the size of the protrusion equalled that of a large cocoanut. Various efforts had been made by the woman herself to reduce the hernia; among others a large blister had been applied over the entire surface. Her physician, Dr. Schoonover, had been called in early in the day, and had exhausted every means to reduce the hernia; taxis, made by myself, failed to accomplish the purpose; pain was intense over the site of the stricture, the patient vomited constantly, and her nervous system was exhausted. It was plainly evident to me that I could not relieve her by taxis; the intestine had been too long imprisoned, the parts were swollen, and the tenderness produced by the blister was very marked. I proposed laparotomy for its relief, and the patient acquiesced. Preparations were at once made, under great difficulties, as the patient lived in a tenement house, where there was little or nothing with which to undertake such an operation. The patient's heart was not in good condition, but we deemed its irregular action to be sympathetic.

A laparotomy by gaslight is not a pleasant undertaking. The patient was brought into the kitchen, put upon a table, and made as comfortable as possible under the circumstances; old sheets and pillow cases were drafted into service as towels. The abdomen, denuded of its epithelium by the blister, was carefully cleansed, and an incision six inches long made over the hernia, extending three inches above and three below the navel; the tissues covering the intestines had been stretched to such an extent that but little remained over the gut. Incision into the sac showed that the entire omentum protruded through the umbilicus and was firmly bound to the sac by old inflammatory adhesions, which it was necessary to sever before the stricture could be reached or the intestine exposed; this was a difficult matter, owing to the fact that the contents of the sac were much congested by the obstructed circulation and bled profusely when disturbed. When this had been accomplished and the intestine exposed it was found that the entire transverse colon occupied

the hernial sac; never before had it been my fortune to meet with that portion of the intestine in a navel hernia. The stricture was relieved by incision upward through the abdominal wall and the intestine released. It was then found that the strangulation was caused by the mesentery, the latter having developed a tumor in its folds, the size of a hen's egg, and composed principally of fat; this had made its way through the breach with the intestine, caught the latter in one of its folds, and prevented its return by any method of taxis. Before the intestine could be returned to the abdominal cavity it was necessary to ligate the vessels feeding the tumor and remove it. The transverse colon was much congested, but there was no evidence of gangrenous spots, so it was thoroughly cleansed and returned to the abdominal cavity. Great care was taken to prevent any blood or water making its way into the abdominal cavity, and I did not deem it necessary to irrigate the latter. After the intestine had been replaced an attempt was made to restore the omentum to its proper position; but it was at once made manifest that this could not be done without great danger of peritonitis following, owing to the fact that it was exceedingly fat and thick, and bleeding freely from numerous points upon its surface where it had been broken away from the sac. Rather than return the omentum in such a condition, I deemed it wiser and less hazardous to amputate it entirely, which I did, quilting it off in sections close to the transverse colon, using small, chromicized catgut; each stump above the ligature was then thoroughly cleansed and touched with pure carbolic acid, wiped dry, and returned. The portion of omentum removed was larger than my two hands spread out, and fully an inch thick. The abdominal cavity about the site of operation was cleansed with dry sponges, but no water or sponges were introduced within the pelvic cavity; the peritoneum was closed with a continuous catgut suture. The abdominal walls were then taken in hand, and all that portion containing the hernial sac was taken away by removing a section of skin on either side, elliptical in shape, two inches wide and about six inches long, including the navel and cord down to the peritoneum. The two lateral halves of the linea alba were then dissected out from the fat and brought into apposition. For the purpose of retaining this tissue until firm union should take place, silver-wire sutures were introduced after the method I have described; in this case three were used. They were then shoul-

dered after the method of Dr. Emmet, and a canula placed over each suture and shotted in position. Between the wire sutures interrupted catgut sutures were placed, so that the entire linea alba was brought into close apposition, and a row of salmon-gut sutures was then introduced through skin and cellular tissue down to the linea alba, but not including the latter. When the catgut sutures had been tied, the wire sutures, with their canulæ, protruded through the centre of the wound; the parts were cleansed, and dressed with iodoform gauze, and the patient put to bed. She bore the operation fairly well. As soon as she had come out from the anesthetic sufficiently to swallow she was given half a seidlitz powder in hot water; this was repeated every hour until she had taken four, for the purpose of keeping up vermicular action of the intestines, thereby preventing adhesions, and also relieving congestion about the bowel by producing a watery stool as soon as possible, which was accomplished the next morning. From that time on the patient's recovery was an uninterrupted one, although she was a most unruly woman; the wound healed by first intention; her temperature never went above 100°, and her pulse soon steadied down and became better than before the operation; tympanites at no time was present. On the twelfth day, while the nurse was absent, the patient got out of bed and walked around the room. The salmon-gut sutures were removed at the end of two weeks, but the silver-wire sutures in the linea alba were allowed to remain until July 15th, two days short of a month; during the last week of this time the patient was up and about the house, caring for herself almost entirely.

The result is a perfect one, no complication whatever having followed the laparotomy and the removal of the entire omentum.

It will be noticed that accident following laparotomy was the direct cause of hernia in the first of these cases, and so far I have purposely refrained from consideration of causes influencing ventral hernia. But it is a well-known fact that, since the advent of laparotomy for intraperitoneal disease, ventral hernia has been much more frequently met with, and I wish, if possible, to place the cause where it belongs—to the credit of the surgeon, in the careless closure of the abdominal wound; the unnecessary and prolonged use of the drainage tube; the making of an unnecessarily large incision; too early removal of sutures; allowing the intestines to become tympanitic instead of early using the saline

cathartics; allowing his patient to go from his care too soon without proper support by well-fitting bandage, and especially when mural abscess has followed his work.

Wylie reports sixty-seven consecutive laparatomies, eight of which were for ventral hernia; the eight operations were performed upon six women, two having to be repeated.¹ In five of the six women the hernia followed a previous laparotomy, and in all the drainage tube had been used—evidencee sufficient to convince me that the drainage tube is not a harmless instrument.

In closing this paper I wish to draw attention to the following conclusions:

1. That in the female the treatment of umbilical or ventral hernia by mechanical support rather than by radical operation is unwise.

2. That the radical operation, if properly done, is not more dangerous than laparotomy for any other purpose.

3. That the use of a buried non-absorbent suture is attended with more or less risk.

4. That to secure a good result it is necessary to have perfect apposition of the cut edges of the linea alba.

5. That in using any form of suture which includes skin, cellular tissue, and peritoneum with the linea alba, we cannot be sure of proper apposition of the latter.

6. That the silver-wire suture, if adjusted as I have described, can be worn from three to five weeks without causing irritation.

7. That the small sinuses leading down to the linea alba from the use of the silver canulæ over the wire sutures are an advantage rather than otherwise in fleshy women.

8. That if operators who have this accident follow in the wake of their work would only report their cases, the profession at large would profit by it and greater efforts be made to prevent the occurrence.

¹ AMERICAN JOURNAL OF OBSTETICS, 1887, p. 25.

TREATMENT OF SUMMER COMPLAINT.¹

BY

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By the term "summer complaint," as here employed, is meant a form of bowel disorder of infants characterized usually by diarrhea, sometimes by constipation, and accompanied by more or less well-marked symptoms traceable to the central nervous system.

So wide is the variation in its symptomatology, and so numerous the etiological factors concerned in its production, that it may well be considered a group of diseases rather than a single affection. For many reasons, however, it seems to me desirable to retain the single, comprehensive term rather than attempt a classification avowedly imperfect.

The diarrheal forms of summer complaint are to be differentiated from the symptomatic diarrheas of specific diseases and those occurring in various septic processes. In these classes should be included the diarrhea of typhoid fever, of tuberculosis, of malaria, of true dysentery, of diphtheritic disease of the intestine, and of diseases somewhat roughly classed as septicemia. With the foregoing as a definition, we are in position to discuss summer complaint.

All the principal factors which have been recognized as possessing an etiological influence on this disease will be found to fall into one or the other of the following three classes :

1. Means favoring the contamination of food with micro-organisms, and facilitating their development therein.
2. Means of introducing micro-organisms or contaminated food into the child's stomach.
3. Influences diminishing the child's resistance.

As Escherich has shown, the meconium of the newly-born soon becomes the habitat of a rich and varied flora ; but with the disappearance of the meconium and the establishment of

¹Read before the Gynecological Society of Chicago, July 23d, 1892.

the milk stools of the normally fed and healthy infant, the varied flora disappears, and in its place a flora is found characterized by the marked predominance of two species—viz., the *Bacterium lactis aerogenes* in the upper part of the intestinal tract, and the *Bacterium coli commune* in the lower part. This condition continues so long as the diet is limited to milk and the child remains well. But with the advent of summer complaint a diversified flora again makes its appearance.

Booker¹ of Baltimore, and Jeffries² of Boston, have separated quite a number of micro-organisms from the stools of summer complaint, but have not found any one or more organisms present in any considerable number of cases, from which it would appear that many different organisms are capable of inducing the symptoms of this disease. This idea is still further confirmed by Vaughan's³ experiments, which also demonstrate one method, at least, by which these organisms produce their effects. Vaughan received from Booker tube cultures of three of his germs—viz., those known in Booker's series as X, *a*, and A. Each of these was grown in sterilized beef broth, and from the resulting cultures proteid substances were extracted which differed chemically from each other, but which, when injected under the skin of kittens or dogs, produced alike vomiting and purging, and, when given in sufficient quantity, collapse and death.

With a view to differentiating, as far as possible, the various fermentative processes which the micro-organisms induce in the intestinal canal, I have directed my attention to the odor of the stools,⁴ and have been much impressed by the readiness with which, by the odor alone, at least two general classes of fermentations can be distinguished. In the great majority of cases, without the use of direct questions, mothers even of very moderate intelligence will describe the odor of the stools as either sour or putrid. And this classification corresponds to the two great classes of food stuffs. The known fermentations of the carbohydrate foods all lead to the development of acids and gases.⁵ Under no circumstances can carbohydrates yield products with a putrid odor. On the other hand, proteids yield either odorless or putrid products.

¹ Trans. Am. Pediatric Soc., vol. i., p. 198. ² Ibid., p. 249.

³ Ibid., vol. ii., p. 109.

⁴ Medical News, lii., 229, and Archives of Pediatrics, May, 1890.

⁵ New York Medical Journal, November 9th, 1889.

The intestinal tract of the infant differs from that of the adult in the superabundance of lymphoid tissue present in its make-up. This tissue is essentially absorptive in function. This function is of great importance to the healthy and rapidly growing infant, but becomes a great drawback when pathological processes develop absorbable poisons in the intestine.

The work of L. Emmett Holt, of New York,¹ has given a very clear insight into the morphological changes which occur in the intestines in this disease. These changes may be briefly described as consisting of, first, swelling of the lymphoid tissue, next its death, then sloughing, and finally extension of the ulceration to adjacent intestinal tissues, terminating rarely in perforation of the peritoneal coat. The principal seat of these changes is in the follicles of the upper part of the large intestine. These several changes occur somewhat slowly, and extensive ulceration is not established until the disease has continued about three weeks. These statements are general, and are not to be regarded as absolutely true in all cases, or unmodifiable by special conditions. It is particularly important, however, to recognize that these changes are progressive as to time, and that very severe cases, those which terminate fatally in twenty four to forty-eight hours, so-called cholera infantum, do not present morphological changes in the intestine.

From these considerations it would appear that the lesions are of secondary importance. It has never been shown that they are concerned in the production of any of the symptoms of the disease, abdominal tenderness alone excepted. They are to be regarded rather as an index of the severity and the duration of the essential causes of the disease, being, like other symptoms, results of these causes. In chronic cases, by which are to be understood those in which the lesions have become well marked, they play an important rôle, which will be referred to hereafter.

The important symptoms of the disease are those referable to the gastro-intestinal tract, to the central nervous system, and to the kidneys. Of the nervous symptoms the most important are depression, wakefulness, drowsiness, coma, convulsions, and fever. The diarrhea itself is salutary. The number of stools, generally speaking, is unimportant. Even where the number

¹ "Cyclopedia of Diseases of Children," Keating, vol. iii.

of movements is very great the accompanying depression is probably only in part due to the serous drain.

With the foregoing views as to the etiology and pathology of the affection, the treatment should be directed on the following lines.

1. The child. Its strength must be sustained, and in all efforts to cure the disease its general welfare must never be lost sight of nor its frailty overlooked. Herein lies the field for the exercise of that judgment by which all curative measures are to be guided.

2. Removal of the intestinal contents.

3. Regulation of the diet.

4. Administration of intestinal antiseptics.

5. Combating special symptoms.

For the removal of the intestinal contents several measures are in vogue. Under no circumstances should the natural diarrheal movements be trusted to effect this object. Rhubarb has long been used in this connection, but the property for which it is most praised—viz., its secondary astringent effect—is clearly an objection to its use. The time-honored castor oil is very valuable here, but has not proven as satisfactory in my own hands as calomel. It is my custom to give, at intervals of four hours, three one-grain doses of this drug rubbed up with sugar of milk. For children under one year I make the dose one-half grain. Not infrequently its use is followed by some diminution in the number of the stools, but even under these circumstances the nervous symptoms are improved. It is often desirable to follow the calomel with castor oil. It must not be taken for granted that the administration of the cathartic is all that is necessary to secure a satisfactory emptying of the bowels. Not infrequently the cathartic must be repeated several times. I have in a number of instances had my attention unpleasantly called to this fact. Once the lesson was peculiarly plain and distressing, when a child with a temperature of 107° , and in convulsions, passed, a few minutes before its death, a mass of intensely putrid feces, when from the free purgation following the use of calomel and croton oil, and the employment of lavage, I had thought that I had completely emptied the bowel. In cases requiring prompt action one-eighth or one-fourth drop of croton oil in emulsion may be administered per rectum: but its use is rather disappointing, as it usually only empties the rectum.

Lavage of the bowel is very valuable as a means of evacuation when quick action is required. When used, however, it should be used thoroughly, a quart of warm water at a time being introduced into the colon, preferably through a soft catheter.

With thorough evacuation of the bowels some improvement is usually manifest, but the persistence of dangerous nervous symptoms should lead to the suspicion of the retention of poisonous feces.

With the evacuation of the bowels the bacterial culture in which the poisons producing the disease are being elaborated has been removed from contact with the absorptive tissue of the intestine. But the bowel has not been sterilized, nor can this ever be accomplished. Nevertheless the bowel can be freed of the micro-organisms which have produced the poisons. The method for accomplishing this is clearly pointed out by the changes which occur in the intestinal flora of the newly-born at the establishment of the milk stools. The meconium is capable of supporting a great variety of micro-organisms, and while it is present a diversified flora exists. But with its disappearance from the intestine the flora likewise disappears, because the food necessary for the support of these micro-organisms is no longer present and they die of starvation. To rid the bowel of the pathogenetic micro-organisms of summer complaint, keep out of it the food on which they thrive. For me, this is the keynote to the dietetic management of these cases. Many practitioners withhold all food for twenty-four hours or longer. This practice will unquestionably accomplish the desired end if carried out long enough. It is not, however, free from objections. It is difficult to impress parents with its importance, and difficult to secure faithful adherence to it, and often it cannot be carried out long enough to accomplish the desired result. It would be preferable to discover the offending food, and withhold it, allowing at the same time foods which will not maintain the offending micro-organisms. In most cases this can certainly be done.

When the stools are putrid or possess an intensified fecal odor they indicate the decomposition in them of proteid material. No other form of food than the albuminous can give rise to putrid products. In such cases it is clear that proteid food should be withheld. It is unquestionably true that proteid decompositions occur at times without the development of offensive odors, but with the development of poisons. It is to be

remembered that all poisons which can be formed in the intestinal tract, and which are capable when absorbed of producing systemic symptoms—viz., such poisons as ptomaines and toxalbumins—all contain nitrogen and must therefore have their origin in the proteid foods. It therefore follows that if marked systemic symptoms be present, whether the stools be distinctly putrid or not, the proteid foods are the source of the damage and should be withheld. On the other hand, putrid stools may continue for a long time, weeks and even months, without the child apparently being any the worse. In these latter cases we must assume either that no poisons are being produced in the particular decompositions present, or, if produced, are either not absorbed or are destroyed in the portal vein or liver. The proteid foods, one or more of which the child has been receiving, are milk, meat, fish, and eggs. While the proteids are being withheld one or more of the carbohydrate foods may be administered. Of these, arrowroot, being the most free from nitrogenous material, is theoretically the best; but, as a matter of fact, I have not found anything answer the purpose better than crackers. Rice may be allowed, but children, as a rule, do not like it. I have frequently allowed baked potato without ever having reason to regret it. Many years ago Moore, of England, put his cases of summer complaint on a diet of cane sugar, and the practice was good.

With a diet of this type the putridity of the stools disappears usually in twenty-four to forty-eight hours, depending somewhat upon the thoroughness with which the bowels have been cleared out. The change in odor of the stools is, of course, not in itself important, except as it is an index of the changes in the intestinal contents. It is usually, however, accompanied by improvement in the systemic symptoms.

As to the objections which are usually urged against the use of a starch diet in infancy a word or two should be said. Theoretically the child under six months of age, because of the deficiency of salivary and pancreatic secretions, is held to be incapable of digesting starches. Practically this is not true. Probably every fluid of the body contains a more or less active diastatic ferment. Even milk has in it such a ferment, and, as a matter of fact, the very young infant does digest starch. We have all seen too many children successfully fed on arrowroot to deny this fact. I do not wish, however, to be understood as

advocating a continuous starchy diet for the infant. The use of starch for a week is harmless, but the use of starch over a period of months may set up a very deplorable condition of affairs.

Again, it may be urged that the use of solid food in diarrhea is objectionable. This is a very old idea, and is based upon the notion that the bowel is in a state of inflammation, whatever that may mean, and is mechanically irritated by solid food. The feces produced by the solid foods above mentioned are certainly no harder than the coagula of milk; and even if they were, there is no reason to infer that mechanical irritation would give rise to the symptoms of summer complaint. In fact, as already stated, the lesions themselves are probably secondary and not concerned in the production of the symptoms. Extensive ulceration of the bowel has been found post mortem without any preceding diarrhea.

Sterilized milk as a food during summer complaint is properly considered in connection with the putrid form of this disorder. Sterilized cow's milk differs from raw cow's milk biologically, but not chemically. Slight chemical differences exist, but they play no rôle in this connection, while they do modify the efficacy of sterilized milk as a nutrient for a long-continued diet. Sterilized milk is equally as rich as raw milk in proteid constituents, and, like raw milk, can support the same micro-organisms, can undergo the same putrefactions. Indeed, recent experiments show that many micro-organisms grow better in sterilized milk than in raw milk. It is of little moment whether germ-free milk or milk containing micro-organisms is introduced into the intestinal tract, when either is immediately to become inoculated there with the disease-producing germs. Sterilized milk is valuable in the prophylaxis of summer complaint, but not in its cure. The same is true of breast milk, which is a raw sterile milk. Other things being equal, I have found that I can more quickly control summer complaint in a bottle baby than in a breast baby, because with the former the diet can be absolutely controlled. In severe forms of summer complaint the breast-fed baby should be deprived of its natural nourishment as long as may be necessary to control the bowel disorder. This does not mean weaning, as the breast secretion should be maintained during the interval by the proper use of the breast pump.

With the disappearance of the putridity of the stools the odor

becomes either normal or sour, and this brings us to the consideration of the dietetic handling of the acid-smelling stools.

The acid fermentations are maintained by the sugars, starches, and to some extent also by the fats. The acid fermentations are less dangerous to the child than the putrid fermentations, because in them no systemic poisons are produced. The principal danger of the acid fermentations lies in the fact that their products are probably capable of producing the ulcerative lesions in the bowels and in this way prolonging the disorder. The stools of the acid diarrhea are not only sour in odor, but frequently frothy from the formation of gases. Often they are seen to contain lumps of mucin precipitated from the mucus by the free fatty acids. This form of the disease is usually accompanied by more pain than the putrid form, and chafing of the parts about the anus is quite common.

Upon theoretical grounds I formerly withheld all carbohydrates in these cases, and administered as food the white of egg in water. This practice I have since discontinued, as it usually sets up a putrid diarrhea, thus transforming a comparatively harmless form of the disorder into a harmful one. Only in the severest cases of this type is it necessary to completely withhold the carbohydrates, and when this is to be done all food must be withheld. On returning to food, milk alone should be given, as the carbohydrate which it contains—milk sugar—is the least liable of any to continue the disturbance.

Whatever food is given in summer complaint should not only be carefully regulated qualitatively, but should also be given in small quantities and at regular intervals of considerable duration.

Attempts to disinfect the intestinal canal by medicines are disappointing. Naphthalin will obscure the odor of the stools with its own odor, while salol and the salicylates are of but slight value. Small doses of calomel are more effective, but frequently maintain the diarrhea and increase the disturbance. The subnitrate of bismuth, however, is a drug of great value. It approaches far more nearly to an ideal disinfectant. It must be given freely—ten to twenty grains from three to five times daily. It unquestionably, however, acts as an astringent, and the locking-up of poisonous feces in the bowel by its use must be carefully guarded against.

The principal lesions in summer complaint being located in

the colon¹ shows that there is the main seat of the absorption of the poisons produced. This fact makes the best of all antiseptics, water, available for use. Lavage of the bowel should be an attempt to wash the whole colon. Lavage not only removes fecal masses, but clears out the mucus and cleans the lesions, thus promoting their healing.

In washing the bowel, not infrequently a portion of the water introduced remains for some time, showing that it would be dangerous to introduce in this way large quantities of even a mild solution of corrosive sublimate. Borax, however, may be conveniently combined with the water, not only for its antiseptic but also for its detergent effects; the solution, being alkaline, more readily removes the mucus.

The lesions once formed, their surfaces become the habitat of micro-organisms, which can be maintained there by the secretions of the ulcers, in spite of all efforts to clear the bowel of substances capable of supporting them. In this way the lesions serve to prolong the trouble, and when they are once well established the disease may properly be termed chronic.

Water internally and externally is of great importance. The child should always be allowed all the sterilized water it will drink, the condition of the stomach permitting. Baths are peculiarly useful, being stimulating and grateful to the patient and securing needed rest.

In most cases stimulants are indicated to a greater or less degree. Alcohol, preferably in the shape of whiskey, is probably best in the majority of cases. A drug of much importance and one often indicated is belladonna.

With collapse present or threatening, the hot bath performs a double function. It stimulates the heart and favors the elimination through the skin of the poisons producing the depression.

Opium is a drug much used and much abused in this disease. It seems to be the custom at present either to praise it inordinately or to condemn it completely. The truth, as usual, probably lies between. In so far as opium counteracts systemic symptoms produced by poisons absorbed from the intestinal canal, it does good. But as it does this at the expense of retaining the cause of the trouble, the good is accomplished at too great an expense. Certainly its use under such circumstances

¹ Holt, loc. cit.

is not at all in harmony with the plan of treatment advocated in this paper. In the acid form of the trouble, where systemic poisoning is not present and where there is much pain, opium may be useful; particularly if combined with lavage of the bowel. However, the pain may be assuaged by heat, and the movements controlled, if this be considered desirable, by bismuth, so that the necessity for the use of opium is not apparent. Although I formerly treated all cases of summer diarrhea with opium, I have to confess that for several years I have met but very few cases where I have seen an indication for this drug. Moreover, the results obtained by the plan of treatment advocated in this paper have been far more satisfactory than those obtained under the opium treatment.

408 CENTRE STREET.

TRANSACTIONS OF THE GYNECOLOGICAL SOCIETY OF CHICAGO.

Meeting of July 22d, 1892.

The President, J. SUYDAM KNOX, M.D., in the Chair.

DR. CHRISTIAN FENGER read an essay on

TOTAL EXTIRPATION OF THE VAGINA FOR CARCINOMA.¹

DR. F. W. MARTIN.—We all remember that Dr. Fenger was the first surgeon but one in this country to remove the uterus by the vagina; we remember the paper written at that time, and the epidemic in vaginal hysterectomies since. He is now the first in this country, I believe, to bring forth this operation, which, while a simpler one in many respects, will undoubtedly be followed by imitators all over the country. Fortunately, as stated in the paper, cancer of the vagina is rare as compared with cancer of the uterus. During my experience in gynecology I have seen one well-marked case of cancer of the vagina that might have been removed had I known of the work that had been done in that direction. I was satisfied to thoroughly curette it, and, as there was no possible excuse for removing the uterus, it remained.

While we cannot criticise a paper like this, we can extend our thanks and ask a few questions. I wish to ask the reason of the positive statement against the use of the galvano-cautery wire in

¹ See original article, p. 218.

surgery. The galvano-cautery wire is, of course, not indicated in any case where you expect to get union by first intention; it is therefore contra-indicated in all plastic operations. But it seems to me it is indicated in just these cases—in the first place, because it carries with it a hemostatic power, and, second, it possesses a powerful antiseptic power; it not only checks hemorrhage, but it leaves a clean surface, and the only contra-indication I can see to its use is in a location where a large artery might be destroyed by the wire. But where there is very little danger of hemorrhage, as in vaginal extirpation, and from the results reported by Byrne, of Brooklyn, in the American Gynecological Society from time to time of the good results of cancer removed by galvano-cautery, we are certainly led to look upon it at least with toleration until some good reason arises for not using it. I would ask Dr. Fenger why he said that it was unsurgical in all cases to use the galvano-cautery wire.

I have removed the uteruses for cancer in about twenty cases, and I have noticed that in the cases in which there was no return the vagina was very much involved. The first case I remember of operating upon was one in which the vagina was almost entirely extirpated down to within one-half inch of the vulva on one side. I supposed it would go on and extend, but the patient got well and has remained so. Whether it is a coincidence with me or not I cannot say, but I have noticed where the vagina has been considerably involved there has been no liability to return.

DR. H. P. NEWMAN.—Like the previous speaker, I feel exceedingly diffident in attempting a discussion of a paper so exhaustive, and presented by so eminent a leader in this line of work; but I, too, would like to ask questions. In doing this operation on a pregnant woman, that is, the removal of so large a surface at or near term, we should bear in mind the possibility of producing premature delivery with complete or very serious rupture of the vagina. While we know that vulval, vaginal, and even cervical operations are done on pregnant women, at the same time there is always the danger of bringing about premature delivery, and at one time it was counselled to let all such cases alone until after delivery. I understood the doctor to say, and I can see good reason for it, that the operation here should certainly be done notwithstanding that danger. As the essayist has said, we can remedy even a very serious tear involving the vagina and neighboring viscera, by sewing it up, but we cannot remedy a rapidly developing carcinoma without prompt and radical surgical measures. Consequently, where carcinoma of the vagina occurs in pregnant women this operation is indicated and should be done; but we should bear in mind that the tearing in the subsequent delivery, whether immediate or remote, is apt to be extensive, necessitating a careful after-examination in all cases, and an equally prompt and painstaking surgical procedure in its repair.

DR. CHRISTIAN FENGER, in closing the discussion, said: In

reply to Dr. Martin, my opinion of the galvano-cautery loop is this: that it is uncertain in fulfilling its object of bloodless operating, especially when arteries above or of the size of the radial or lingual have to be divided. Its sister instrument, the *écraseur*, has for the same reason been almost entirely abandoned. As to opening into adjoining cavities, we operate with both of these instruments, so to say, in the dark. I consider the method of dividing tissues with knife or scissors, and stopping hemorrhage by ligating vessels as we go, more surgical. Extirpation of the tongue or amputation of the penis was formerly often done by *écraseur* or galvano-cautery loop, but modern operators now use knife or scissors.

It is possible that in the removal of polypi of the uterus or nasal cavity, where ligation is not called for, the galvano-cautery loop has a place. But where we can get at the bleeding surface with hemostatic forceps and the Paquelin cautery, I think it is preferable to operate with the knife—as Schröder and Martin have done in the vagina—ligate the large vessels, and use the Paquelin on the smaller ones if there are many of them. Martin introduced two fingers into the rectum and cauterized the bleeding territories, guided by the touch of the fingers, so that too deep cauterization was not done. With the only exception of the nose, I have not used a loop of any kind for many years.

Dr. Martin has observed that the secondary vaginal carcinoma, or carcinoma extending down into the vagina from the uterus, has a different character from the primary vaginal carcinoma, in this: that it is much more benignant as far as rapid extension and prognosis are concerned. This fact would seem to indicate that a relatively benignant uterine carcinoma retains its original character even when it grows in the vaginal wall. This observation raises the very important question of the influence of the tissue in which a carcinoma originates. It is a well-known fact that carcinomata, irrespective of the form of the cells (we will take as an example pavement-celled carcinomata), show a very different degree of malignancy according to their place of origin. The flat, cutaneous carcinoma on the nose gives a radical cure after removal in about seventy per cent.¹ The carcinoma of the lower lip was removed, with freedom from relapse for over three years, in one hundred and six out of two hundred and seventy-seven patients.² The carcinomata in the adjoining mucous cavities show a high degree of malignancy. Thus, in the nasal cavity and on the superior maxilla relapse followed in sixty-one per cent; in the mucosa of the cheek, even in eighty per cent of the operations.³ Still more remarkable in this respect are some observations concerning the primary carcinomata of the extremities published by Rudolph Volkmann, a nephew of the renowned Richard Volkmann, of Halle. He found

¹ Bonda.² Maiweg.³ Bonda.

that when the cutaneous carcinoma had originated in a previously normal skin, or in a granulating surface of an ulcer or a fistula, or in a hard, non-congenital wart, a wart that had formed late in life, then the tumor was relatively benignant, giving about fifty per cent of radical cures after removal. On the other hand, if the carcinoma had originated in a congenital wart or mole, or one that had formed early in life, the prognosis was exceedingly grave; all the cases, seven in number, of which record was obtained after the operation, terminated fatally from rapid granulation of the carcinoma. It almost looks as if the vagina furnishes a soil that gives a malignant character to the carcinomata originating in it.

Dr. Newman raises the question of advisability of radical operation for vaginal carcinoma in a pregnant woman. As yet no diffused carcinoma has been operated on during pregnancy. The main point to be considered seems to be the danger from impossible or difficult delivery. Thus, Schröder advised extirpation during pregnancy, not of diffused but of localized tumors, and of these only if they formed an obstacle to delivery. If the tumor and vaginal wall were movable enough to be pushed out of the way during the passage of the head, he did not advocate operating. To abstain from an otherwise practicable radical operation for the carcinoma for fear of cicatricial contraction and consequent obstacle to delivery does not appear to me to be justified—first, because a vaginal defect can be covered by a plastic operation at the time of the extirpation of the carcinoma; second, because it has been observed that women with acquired cicatricial stenosis of the vagina have been delivered without much difficulty.

The question of premature delivery raised by Dr. Earle is an important one, and this measure should be seriously considered, especially if the diagnosis is made early in pregnancy. Although Küstner's case of premature delivery in the fifth month terminated fatally from sepsis, it might be possible that a better result would be obtained if the tumor was so small that no extensive curetting was necessary. In a diffused carcinoma the degree of narrowing of the vagina would probably decide between premature delivery and Cesarean section at term.

DR. CHRISTOPHER read a paper entitled

TREATMENT OF SUMMER COMPLAINT.¹

DR. F. E. WAXHAM.—Instead of considering all intestinal diseases under the head of summer complaint, I prefer to make three divisions—first, that of simple non-inflammatory diarrhea; second, inflammatory diarrhea, or entero-colitis, or ordinary summer complaint; and third, cholera infantum. Whatever the cause, whether bacillus or ptomaine or what, it seems to me

¹ See original article, p. 250.

that the symptoms are sufficiently different to justify us in this division. In simple non-inflammatory diarrhea we have symptoms indicating no lesions whatever of the intestinal tract; it is a functional disease, simply an erythematous inflammation, a transient irritation, as it were, of the intestinal tract, without evidence of inflammation, without lesions, and characterized solely by increased frequency and fluidity of the passages: without vomiting, without incessant diarrhea, without fever, without tenderness of the abdomen. In the second class—in the enterocolitis, or ordinary summer complaint, or inflammatory diarrhea—we have certain lesions, we have the ulcerations that have been referred to, the enlargement and tumefaction of the intestinal glands, etc.; we have a rise of temperature, increased frequency of the pulse; we have abdominal tenderness and distention; we have the characteristic mucous passages mixed with blood and frequently with undigested food. These are the symptoms of ordinary summer complaint. Under the third division I would include those cases of violent, intense inflammation of the gastro-intestinal tract associated with disturbance of the sympathetic nervous system, which is perhaps the most prominent symptom. The symptoms of cholera infantum consist of incessant, almost uncontrollable vomiting, large, profuse watery passages, a high temperature and retracted abdomen, great and rapid emaciation, and we have a condition of shock which is not present in either of the other two forms of disease.

The treatment is preventive and therapeutic. In regard to preventive treatment I will say but little; attention to the food is a most important matter, and in addition to this the care of the patient during the hot season is of great importance. A common fault is to feed a baby too frequently, especially a baby that is at the breast. A baby will frequently take food or the breast every half-hour simply because it is thirsty, and not because it is hungry; and to continually feed or nurse a baby is certain to lead to irritation of the gastro-intestinal tract. So during the hot days of summer a baby should be given plenty of water to drink and should not be nursed too frequently. I believe that babies should be kept cool during the hot days, two or three sponge baths should be given them during the day, and their clothing should be light and cool. And, above all things, they should be guarded against sudden changes of temperature; this is very important. Children are often dressed lightly, and when there is a sudden change of temperature the surface becomes chilled, then diarrhea or cholera infantum frequently follows.

In regard to the therapeutic treatment, I believe the tendency is to give too much medicine to these children. It is not right to fill them up with astringents, nauseating mixtures, emulsions, and the like, but we should consider the treatment appropriate to the different forms of disease. In simple non-

inflammatory diarrhea all that is usually necessary is attention to diet, having the mother nurse the child less frequently, and giving it perhaps a few doses of paregoric. I believe that one or two doses of opium will be of service in these cases, after having operated upon the bowels properly, ridding them of any irritant that may be present. In cases of entero-colitis, or summer complaint, or inflammatory diarrhea, I believe large doses of bismuth constitute one of our most important remedies; the dose should be at least a drachm, or even two or three drachms a day to a young child. Flushing the bowels is a most important aid in the treatment of this form of disease. The irrigation of the bowels may be considered, perhaps, under two heads: flushing the intestinal tract for the purpose of removing mucus and cleansing the bowels, and injections for the purpose of getting the special effect of some drug upon the diseased surface. For the first purpose plain sterilized water or a saturated solution of boracic acid is all that is necessary. After flushing the bowel with sterilized water or some alkaline solution we may then either use small enemata of an emulsion of bismuth, or we may use nitrate of silver for its special effect upon ulcers of the colon. When solutions of nitrate of silver are used they should be followed by an alkaline solution; flushing the colon first, then using nitrate of silver in mild solution, then an alkaline mixture. Where an emulsion of bismuth is used it should be allowed to remain as long as possible in contact with the diseased surface.

In regard to cholera infantum—that form of intestinal disease associated with incessant vomiting, copious passages, and rapid prostration—in its treatment I believe that morphia is one of our best remedies. When we have a disordered condition of the sympathetic nervous system, when we have a condition of the vaso-motor nerves verging on paralysis which permits of the copious transudation of serum into the intestinal tract, opium is our sheet anchor. In the treatment of cholera infantum I believe opium is our most efficient remedy when properly used. In using opium I prefer morphia, even for young children. I have often hesitated about recommending morphia in the treatment of cholera infantum, because there are so many physicians who consider all intestinal diseases cases of cholera infantum, which is a mistake. I believe morphia is only indicated where there are great and rapid prostration, copious passages, and incessant vomiting, and I know of no other remedy that acts as well and as promptly. When a baby is vomiting every few minutes it is useless to fill it up with castor oil, it is absurd to give it astringents; but morphia may be administered in a solution of one-sixtieth to one-hundredth of a grain in a teaspoon of ice water, giving it every time the child vomits, and in the majority of cases this will soon check the vomiting. In those cases of rapid waste it is

hardly proper to give calomel or any other purgative, because we cannot wait to get the effect—we must act promptly; and not only this, but the passages have been so copious and frequent that any foreign substance in the intestinal tract will have been removed before we see the patient. There is another method of administering morphia, and that is by hypodermic injection. Where morphia is used judiciously I believe its use hypodermically is just as efficient in cholera infantum as it is in the cholera morbus of adults, and we know there is no other remedy that will check that disease so promptly. I do not wish to be misunderstood; I do not wish any one to think that morphia is indicated in all the intestinal diseases, only in those cases characterized by copious and frequent passages and by incessant vomiting, by the characteristic symptoms of the disease, which almost uniformly prove fatal unless we can act promptly and efficiently.

DR. WILLIAM E. CLARKE.—I believe it is very important that all irritating matter should be removed from the intestinal tract. There is always a desire on the part of the patient and the friends that the diarrhea should be checked; they are constantly saying, "How am I to stop the diarrhea?" In regard to the proper food for children, I have for years and years made it a practice to direct one portion of milk to be set aside in a slight elevation of temperature, 150° or so, for the sake of separating the cream, and another portion to be treated with pepsin for the purpose of separating the casein, and put the whey of the one with the cream of the other, and I believe I have had better results than from any other form of food. The great difficulty is feeding the child too often and too much; there are far more children killed by gluttony than by starvation.

DR. FRED BYRON ROBINSON.—Dr. Earle says that milk drawn from the cow is pure, without germs. I do not believe that is the case. Germs are in the milk; the home of tuberculosis is in the cow, and there is not a particle of doubt but that the germs of tuberculosis are in the milk. Prudden and others of New York City investigated the cows in the stalls there, and over thirty per cent had tuberculosis. Dr. Brush, of New York, began an investigation of this subject several years ago, and he has shown that the home of the tubercular germ is in the cow. He has shown that those peoples who do not take their nourishment from the cow are much less liable to tuberculosis than those who do, and especially the beautiful cows, such as the Jersey. A great many investigations have shown that over fifty per cent of the Jersey cows have tuberculosis, and these are the cows the most frequently selected for children, because they give rich milk; but very often children fed with this milk die from tuberculosis.

Dr. Waxham advocated giving morphine in cases of shock. But shock is simply depression of the vital forces acting through

the sympathetic nerve. I know that in peritonitis, if we give opium, we are very apt to lose the patient. In cholera infantum, if we get good peristaltic action and get the secretions passing out from the canal, the patient is likely to recover.

I cannot agree with Dr. Waxham in the administration of morphine to very young children. I have seen mainly bad effects in giving morphine to children under 8 months of age. I have not seen satisfactory effects from morphine given to children under 6 months who suffer from what appears like a shock in diarrhea. Yet I certainly am not convinced, as Dr. Christopher related this evening, that opium should not enter so much in the treatment of bowel diarrheas. Opium, in my practice in the treatment of children, has proved the most beneficial when judiciously given. It lessens pain (a depressive agent) and gives the bowel anatomical and physiological rest. Opium renders the mucous membrane less sensitive and allows the irritant to pass over it and out per rectum. I wish to highly commend the efforts of Dr. Christopher in the work done in getting up this paper. There are advanced views in this paper which will prove valuable.

DR. H. P. NEWMAN.—In a large city like ours there should be a place where we could have food sterilized and properly prepared. Secondly, we should have a registry for wet-nurses. The practical working of our wet-nurse system is that when needed they cannot be had, and if you go to some public institution and obtain one they too often are either young and inexperienced or totally unreliable. What we need is a registry for wet-nurses, where every physician in Chicago can be supplied with a competent and reliable nurse at short notice.

DR. W. S. CHRISTOPHER.—The classification of diarrheas is a subject that has vexed writers for many years. Some years ago, on picking up a volume of Eberle's old work, written, I think, in the third decade of this century, I found he gave five or six kinds of diarrhea, which he differentiated, in an article upon diarrhea. In the large French encyclopedia no less than twenty forms of diarrhea are given, with the means of clinically recognizing them; and even in our modern time it is quite the thing to speak of inflammatory diarrheas, non-inflammatory diarrheas, and cholera infantum. Again, we hear diarrhea spoken of as catarrh of the small intestine, catarrh of the large intestine, or combinations of these catarrhs, according to the symptoms present. My effort has been to give a classification of diarrhea which could be recognized clinically and which could be put somewhat on an etiological basis. It is very good to classify diarrhea upon morbid anatomy, but if you can go beyond that and classify it upon an etiological basis I think you have made one step in advance. I endeavored to show from the statements made by L. Emmett Holt, of New York, who is an earnest advo-

cate of the classification of diarrheas upon the basis of morbid anatomy, that such a classification was incorrect. I have forgotten the names he has given to the various forms of diarrhea, but he shows very conclusively, first, that in the severe forms of summer diarrhea, those which terminate fatally within twenty-four to forty-eight hours, which Dr. Waxham calls cholera infantum, there are absolutely no lesions beyond possibly a slight abrasion of the epithelium covering the intestinal tract, a slight loss of epithelium here and there, possibly some arborescence of the vessels. In no case that I have examined post mortem have I found lesions sufficient to explain the horrible symptoms which precede them. He says further that if a case accidentally dies early which has not had these severe symptoms, there are no lesions, but if the case continues the lesions are severe in exact proportion to the *time* the case has lasted. First there is thickening of the lymphatic tissue, the tissue which absorbs from the intestine; next sloughing, the simple mechanical death of the tissue; then ulceration which that slough leaves, with possible extension of the process into the tissues beyond. It is a little strange we should not have perforation more frequently occurring if the lesions were the important factor, but the destructive work seems to be limited almost entirely to the lymphatic or absorptive tissue. Furthermore, there is no ground for assuming that the lesions themselves are the cause of the symptoms. Strümpell states that frequently after a patient has died of tuberculosis, and who has presented for a long time the symptom of diarrhea, there will be found no ulcerations in the bowels. Then, again, cases have been found on the dead table where extensive ulceration of the bowels has existed from some cause without an accompanying diarrhea. Such instances as these show conclusively that there is no necessary relation between ulceration and diarrhea. But there is an accidental relation. Because we find the ulceration, or some degree of change, in patients who have died of diarrhea, is it just therefore to assume that the lesions found are the cause of the symptoms which have preceded them? Not at all. If we will think a moment we will find that these lesions are exactly the ones we would expect to find if we were to put into the intestines certain irritant poisons (I am sorry to have to use the word irritant, because it is indistinct and unscientific)—poisons which, passing through the lymphatic glands, will cause them to enlarge. The conditions found in the intestinal canal after death from summer complaint are exactly those we would expect to find if we assumed that the poisons found were absorbed and caused the absorptive changes as they passed through. This is a rational explanation. Now, then, of the poisons we know can exist there, some are ptomaines and some toxalbumins. It has seemed to me that we might look upon all these cases of summer diarrhea as essentially the same in kind but very different from each other in degree; the milder

forms accompanied by milder poisons, or greater resistance on the part of the child, the severer forms by less resistance, and the most severe forms by excess in the formation of poisons. It has been shown by Booker that certain forms of micro-organisms are the ones most likely to be found in the intestinal contents in the very severe forms known as cholera infantum. Then the observations of Vaughan show conclusively that some of the organisms can produce poisons out of beef tea—that is to say, a proteid substance—which when injected hypodermically produce vomiting, purging, collapse, and death; in other words, just the condition of affairs we see in different forms of this disease. Of the scientific work that has been done, everything of such a nature as to be accurate and reliable points to these cases as being poisoned. I was very particular in the opening of my paper to point to the fact that all diarrhea found in children and infants is not summer complaint. I would like to define summer complaint as a disease caused by putrefaction or fermentation in the intestinal contents, from which poisoning results either directly by action upon the intestinal walls, or indirectly by the poisons themselves acting secondarily on the nervous system and producing various symptoms. I included constipation as one of the symptoms of summer complaint. Suppose we give a patient a hypodermic injection of aloin, what is the result? Purgation. Suppose we give him morphine, what is the result? Constipation. Through the central nervous system we can get the effect of poisons like morphine, producing constipation; or poisons like aloin, producing diarrhea. If we look particularly at the subject of diarrhea we can see that the general etiological factors may be comprised under four heads: First, nutritional disorders, diarrheas which are produced by some vice of nutrition. We not infrequently have in rachitic or scorbutic cases diarrheas which are certainly not due to anything in the intestinal canal, and no amount of attention to the intestinal canal will relieve them, but cod-liver oil given for a considerable time will cause the diarrhea to cease. In other words, diarrhea may positively result directly from a vice of nutrition. Next we can have it produced by poisons formed in the blood. What poisons can be formed in the blood? Only those which are produced by micro-organisms in that fluid; and therefore if any diarrhea occurs in the course of a systemic infectious disease, we would say the poison produced the diarrhea, which occurred as one of the symptoms. Suppose a diarrhea occurs in the course of a scarlet fever, is it not the scarlatina poison which produces it? If it occurs in measles, is it not the measles poison which produces it? Take a case of septicemia—the child has a slight wound, blood poisoning sets in, fever occurs, perhaps an eruption comes upon the body, later we may have pneumonia developed or some form of intestinal diarrhea, either of the enteric type with large, watery stools,

or the dysenteric type with small, bloody, mucous stools. Here the poison is developed in the blood. Thirdly, the micro-organisms may have their habitat in the intestinal wall, and elaborate their diarrhea-producing poisons there. This is partly true in amebic dysentery. The classical monograph of Councilman and Lafleur, of Johns Hopkins, fully demonstrates this point. Let us go further out and we will find that the contents of the bowel may be the seat of the formation of poisons which when absorbed produce various symptoms, and diarrhea happens to be one of them. The class I wanted to consider to-night were the cases where the poisons were liberated in the intestinal contents, and I attempted to show that this class could be further subdivided into two distinct sub-classes—a class in which the poisons were formed out of albuminous foods, accompanied by putrid stools; and a class in which the poisons were formed out of carbohydrate foods, accompanied by acid stools. Some years ago Escherich divided summer complaint into two kinds—that in which the stools were alkaline in reaction, and that in which they were acid in reaction. I believe that the classification I make, dependent upon the odor rather than the reaction to litmus paper, is more rational and admits of a more accurate clinical demonstration. I will say that in a child suffering from summer complaint, that has been receiving milk which contains albumin and casein, it is the poison in the putrid stools which produces the fever and depression. The old idea that because there was inflammation there we must not irritate the bowel by giving solid food, has absolutely no basis in fact; the reason lies not in the mechanical but the chemical features. I have taken such cases and given them baked potato; before the class one day I took a case of diarrhea where the child was having from six to eight stools a day, putrid and watery, and I told the mother to give it all the rice, crackers, and baked potato it wanted. According to the books the child should have died the next day, but it was much better. The point I wanted to bring out in the paper was the methods of handling these cases on a chemical basis. I also went into the matter of removing the contents of the bowels and the matter of antisepsis; I believe chemical antisepsis of the child is unimportant.

DR. EARLE.—I do not make any apology for discussing such topics as we have before us to-night, even if the hour is late, for the questions of infant feeding in connection with summer diarrhea are among the most important that can engage our attention, particularly at this time. I was very glad that Dr. Christopher did not place cholera infantum at the head of all summer diseases, because I think it is the experience of all physicians with us that cholera infantum is one of the rarest diseases we have to treat in the summer. I frequently pass through an entire season without seeing a case, and hardly ever seeing more than one or two.

In the main I agree with the doctor in regard to etiology and treatment, although the classification may be simplified, it appears to me, by placing nearly all the summer diseases of children under the two headings, simple diarrhea and those of bacterial origin. My experience is somewhat different in the use of intestinal antiseptics. I have discarded almost entirely the old astringent mixtures, and feel a degree of confidence in such remedies as castor oil, bismuth, salol, the salicylates, and occasionally an astringent like plumbi acetat. Whenever I give the chalk mixture I direct that it be made up with anise water in place of the cinnamon.

I was sorry to hear Dr. Waxham bring up the old classification of inflammatory and non-inflammatory summer diseases. Some one, whose name I have forgotten, in an article in one of the journals a few months ago, presented the subject in about this way: "What we have always called inflammation is simply a fight on the part of the tissues against the invasion of micro-organisms." Dr. Christopher's paper is on that line, and, accepting that, I think we get nearer the truth than we do on any other hypothesis. That will account for the large number of very serious diseases in summer.

DR. WAXHAM.—Suppose the child eats green apples, is it micro-organisms that cause the trouble?

DR. EARLE.—Very likely the exciting cause is the apples, or the sausage, or cabbage, or something similar, to which the American child has access; but if you will wash out that decomposing stuff and get the intestines in the condition Dr. Christopher has suggested, usually the diarrhea is cured.

I think Dr. Waxham's suggestion as to the use of morphine with young children should be employed guardedly. I speak of it, not to criticise his treatment, but it is a dangerous thing to recommend the use of morphine in any form whatever to children less than a year old. I should be very much afraid to give morphine, even as carefully as Dr. Waxham suggests, to a child that was in collapse. I know very well, however, the stimulant effects of morphine. I have treated a great many men and women addicted to its use, and I have never seen from cholera infantum or any other disease such terrible depression as comes from its withdrawal; it certainly is a most powerful cerebral stimulant, but must be used with great care. Another thing: I believe these terrible cases of summer diarrhea, approaching what we call cholera infantum, are nothing in the world but sepsis, similar to that produced by grippe ptomaine. In the last days of December, and during the first of January this year, when we were having the grippe, I saw two children die in less than three days with exactly the same symptoms of vomiting, profuse diarrhea, and collapse that we occasionally see in children when we diagnose the case in summer as cholera infantum. I believe that in many of these cases a ptomaine is

present, and that when the bacteria are cleared from the intestinal canal it is a matter of stimulation till their products are eliminated from the system. I am surprised that no one has spoken of *nux vomica* and *digitalis*; stimulants have in these diseases a very prominent place.

A REPORT OF A CASE OF HEMATOSALPINX.

DR. HENRY PARKER NEWMAN.—My attention was first called to this case June 27th last. The mother of the patient came to my office and reported that her daughter, Mrs. H., had had a continual vaginal bloody discharge for the past six weeks, but was about her household duties, feeling well, and refused to consult a physician. I informed her that the case was one of importance, necessitating an examination before medical aid or advice could be given. This had the effect of bringing the patient to me for examination a few days later. She gave this history: Was 24 years of age, American. First married six years ago; two years later her husband was drowned, and she lived a widow until January, 1891. Had always enjoyed good health; no children; no menstrual trouble until last winter, when, having passed her menstrual period for six weeks, she consulted a midwife, who used an instrument within the uterus, bringing on her menstrual flow, which was not unduly prolonged or profuse. She has remained well without menstrual trouble until six weeks ago, when, in seeming perfect health, she first noticed, as she thought, a slight menstrual flow, which has continued, increasing slightly in quantity, ever since. It had never been light colored, profuse, in clots, or associated with pain. Owing to excessive nervousness and undue sensibility of the patient a satisfactory examination could not be made. I requested her to come to the hospital the following day, when I would examine her under an anesthetic and explore the uterus if found necessary. I did this, but with negative results as far as the contents of the uterus were concerned. I found, however, the uterus enlarged, three and a half inches in depth, mucous membrane softened, congested, and cervix somewhat patulous. The uterus was crowded to the right side, and behind the left broad ligament a tumor was found, irregular in outline, about the size of one's fist, a portion extending backward and downward into Douglas' cul-de-sac. A pulsation was discernible beneath the attached surface or base of the tumor. A tubal pregnancy was suspected, and the friends of the patient so advised. An operation was suggested, and, after preparatory treatment, on July 13th last was performed at the Post-Graduate Hospital, in the presence of the class, the hospital staff, and two assistants, Drs. McCullom and Beck. On opening the abdomen it was found filled with dark blood, and upon lifting up the intestines a bluish, necrosed tumor came into view at the left of the uterus. Upon close inspection a slight oozing of dark blood

was noticeable at or near the base of the tumor. It was adherent to the side and posterior surfaces of the uterus; also one extremity extended down into Douglas' cul-de-sac and was adherent on all sides. It was with some difficulty that these adhesions were dissected away and the tumor removed intact. Bleeding surfaces were ligated, the abdominal cavity thoroughly doused with sterilized water, the abdominal wound closed with silkworm gut, and a glass drainage tube left in the lower end of the wound. The drainage tube ceased to contain bloody fluid in less than twenty-four hours and was removed. Unfortunately, the abdominal wound became infected through the suture material, which has interfered with the rapid recovery of the patient. Otherwise the patient is doing well and gives promise of speedy and satisfactory recovery.

DR. W. W. JAGGARD.—I have been very much interested in this specimen and the admirable way in which the reader has treated it in not making a positive diagnosis of pregnancy. There are one or two points in the anatomy of the specimen in regard to which I take the liberty of differing with him. A great deal has been said about the corpus luteum of pregnancy *pro* and *con*, but nothing has been said or written in any way to contradict the results of Leopold, and from his description of some of his observations I am inclined to look upon this as a corpus luteum of pregnancy; certainly it is not a typical corpus luteum of menstruation, and I think the fact of a recent pregnancy might be predicated. Then, we have another fact in favor of it: there is an overwhelming amount of evidence that a typical hematosalpinx of that size owes its origin to an extra-uterine pregnancy in many cases. I think those two facts render it highly probable that this was an extra-uterine pregnancy. As regards the anatomy, fetal portions—*i.e.*, villi—and not decidua are diagnostic. I am very much interested in this specimen, because within the last four weeks a similar case has come under my observation, presenting very much the history and local findings described by Dr. Newman. When the case came to me I examined her and wished her to go to the hospital immediately. In the meantime she went to see Dr. Banga, who made a careful examination and coincided with my diagnosis of extra-uterine pregnancy and urged immediate operation. I was not quite so urgent for immediate operation, so she came to me. I put her in bed and kept her under observation; she showed evidence of considerable internal hemorrhage, her lips were white and the surface blanched, and she had the pulse resulting from considerable loss of blood; there was a profuse flow from the vagina, considerably more than the woman would lose at menstruation, even a profuse one; but her temperature was normal, and in my judgment she had abundant strength to stand the drain. The hemorrhage ceased in three days, with no subsidence in the tumor; she was kept strictly in bed. Four days

afterward the hemorrhage recommenced and lasted for a week, and during this time I noticed from day to day an appreciable diminution in the size of the tumor. At the end of a week the hemorrhage ceased and the tumor had disappeared absolutely. There was no elevation of temperature, and the woman's condition remained excellent; there was no indication for operation. To-morrow, or within the week, we are going to let her go out of the hospital, with the uterus, which was retroverted and turned to the right side at the time of her entrance, in its normal position, and nothing remaining to show the former condition except a slight thickening of the tube. This was a case of hematosalpinx which had one of those rare spontaneous terminations by escape of blood into the uterus. It is possible a good deal of blood escaped into the abdominal cavity, but against that is the fact that there was no elevation of temperature.

In conclusion, I would say, first, I think there is enough evidence in Dr. Newman's case to conclude that this is a tubal ectopic gestation. Second, I beg to call attention to the fact that in a certain proportion of these cases spontaneous termination and recovery occur.

DR. FRED BYRON ROBINSON.—The specimen which Dr. Newman presents to-night does not appear to me to be a case of ectopic pregnancy. In my opinion it was originally a pyosalpinx and is ending in a hydrosalpinx. I think I have seen the process of a pyosalpinx passing into a hydrosalpinx in woman, cow, and pig. Of course this means that a pyosalpinx will get well itself. I have examined between thirty and forty specimens of ectopic gestation, and I must say that I have hardly seen one just like this specimen. The tube shows itself in the shape of a retort with tough, leathery walls. The walls are quite uniform in their thickness and show that the expansion has been slow and gradual. The retort-shaped tube shows the convolutions and it appears like an ordinary tube gradually enlarged. In ectopic pregnancy the longitudinal muscles of the tube hypertrophy, but the circular muscles do not enlarge very much. In ectopic tubal gestation one sees a thickened tubal wall, but the thickening is mainly due to inflammatory products, especially immediately surrounding the located gestating ovum. The closed abdominal end in this case proves nothing, as all tubal inflammations tend to close that end. Again, I notice in this specimen that the uterine end stands open like the calibre of a wheat straw. This also shows that the fluid-filled tube could and probably did empty itself when pressure and excessive fulness occurred.

The blood found in the tubal sac is simply an accident. It might have arisen out of the uterus or from the mucous membrane of the tube. The case is of interest, as several men have examined it, and different conclusions seem to arise. Dr. Newman is to be congratulated on the recovery of his patient and also on the instructive way he prepared the specimen. There

exists a corpus luteum in this case, and that is used as an argument that the woman was a subject of tubal pregnancy. I wish to take the liberty to state that a corpus luteum is not a positive sign of pregnancy. I expect to hear opposition to this statement. I have examined nearly a thousand ovaries of man, cow, pig, sheep, and dog. In all these animals I can see no difference in the formation of the so-called corpus luteum. I took thirteen lambs which had never had any young, and carefully examined the ovaries. I found that five of these (nulliparous) lambs showed typical so-called true corpora lutea. They were of large size, of a rounded form, yellow and convoluted, sometimes markedly lobulated or puckered. They had a depression or pit on the summit, showing the original point of rupture of the follicle. They had the characteristic projection beyond the ovarian surface which belongs to true corpora lutea of pregnancy. If such a corpus luteum was split open, the well-known stellate cicatrix of white tissue could be seen. Occasionally a cavity or blood clot was found. In one lamb two corpora lutea, each as big as the ovary itself, existed. Corpora lutea were found in the ovaries of different ages. Therefore in the lamb I could be certain that the corpus luteum is not a positive sign of pregnancy. Considerable work with the cow and pig convinced me that in them the corpus luteum is no sign of pregnancy. I found in cows corpora lutea at two months' pregnancy that could not be told from twenty months after conception. We do not know the duration or life of a corpus luteum. We are not yet familiar with the cause of the rise of a corpus luteum. Nor do we know the law of its disappearance. The medico-legal aspect of a corpus luteum is unfit for the consideration of a court of justice. We have not yet found out the law of its life, and hence it is not amenable to court or state law. There is no definable difference between a so-called true corpus luteum and a so-called false corpus luteum, except in degree.

My conclusions, after examining a large number of ovaries, are: 1. The corpus luteum is no positive sign of pregnancy. 2. There is no difference between the so-called true and false corpus luteum, for they are found in the pregnant and nullipara. 3. It is unjustifiable to elevate the corpus to a medico-legal aspect in distinguishing pregnancy or the nulliparous condition. 4. The yellow body arises before the rupture of the Graafian follicle. This is not universal. 5. The yellow body will occasionally acquire its distinct, so-called (cerebral) convolutions before the rupture of the Graafian follicle. 6. We do not possess means to determine the duration of life and rate of growth of a corpus luteum or Graafian follicle. 7. I found corpora lutea in the cow as large as the normal ovary some twenty months after conception. It was often as large twenty months after conception as three months after conception. At such rate of disappearance it would require longer than two years for a

corpus luteum to pass away in a cow. 8. The size and age of a corpus luteum are uncertain. I have seen a corpus luteum a mere cicatrix two months after delivery, and then again it would be twice as big as the normal ovary ten months after delivery.

DR. J. L. MCCOLLEUM.—Dr. Robinson referred to the large calibre of the opening of the tube. When the specimen was first removed only a few drops of blood could be squeezed through the tube. So small was the opening I used a trocar to make the opening, in order to fill the tube with paraffin and preserve as near as possible its original form.

The muscular fibres in this specimen are very much hypertrophied. The contents of the distended tube were composed of red blood corpuscles and a few granular cells such as are found in ovarian cysts. Nothing—no villi or decidua—could be detected.

DR. BAYARD HOLMES.—It would seem to me that the condition of this wall would be a very significant one. If the wall of this tumor is composed of cicatricial tissue, starved connective tissue, it would uphold Dr. Robinson's statement; but if it is composed of proliferated unstriped muscle fibre, then I should say it would uphold the theory of its being an extra-uterine pregnancy.

DR. H. P. NEWMAN.—One word in regard to the criticism of Dr. Robinson. I would say that the muscular fibres here are unquestionably hypertrophied: it is a marked feature of the walls, discernible by the naked eye as well as with the microscope. The clinical history of this case is strongly against the theory of pyosalpinx. The woman had never had any evidence of pelvic trouble until eight weeks ago; up to that time she was perfectly healthy, as far as she knew, and there had been no menstrual trouble. If she had had a pyosalpinx of this magnitude, she would undoubtedly have had some symptomatology.

Meeting of September 16th, 1892.

The President, J. STYDAM KNOX, M.D., in the Chair.

ONE YEAR'S WORK IN TUBAL AND OVARIAN LAPARATOMY.

(Abstract.)

DR. FRANKLIN H. MARTIN.—Between August 1st, 1891, and August 1st, 1892, I performed thirty-seven laparatomies which involved the removal of the tubes or ovaries of one or both sides. Of these cases, seventeen were for pyosalpinx, one for tubal hematocoele, one for extra-uterine or tubal pregnancy, three removals of appendages for fibroids, one removal of appendages for hystero-epilepsy, thirteen ovariectomies for ovarian cyst and

No.	Age.	Date.	Diagnosis—Operation.	Drainage.	Where.	Assistant.	Nurse.	Immediate Result.	Remote Result.
1	..	August 26th, 1891	Removal of appendages for fibroid.	No.	Woman's Hospital	House staff	Miss Tobin	R.	Cured.
2	..	August 29th, 1891	Removal of ovarian cyst	No.	Woman's Hospital	House staff	.....	R.	Cured.
3	..	September 14th, 1891	Removal of ovarian cyst, left ovary	No.	Woman's Hospital	House staff	.....	R.	Cured.
4	..	September 16th, 1891	Removal of large ovarian tumor	No.	Woman's Hospital	House staff	.....	R.	Cured.
5	..	October 1st, 1891	Removal of cyst of ovary and appendages; ventro-fixation.	No.	Post Graduate Hospital.	Dr. Tunquary	Miss Hurtle	R.	Not known.
6	..	October 14th, 1891	Ovariectomy; cystic ovaries	No.	Post Graduate Hospital	House staff	Miss Hurtle	R.	Not known.
7	..	October 5th, 1891	Removal of appendages, right side; pus; ventro-fixation.	Yes.	Woman's Hospital	House staff	Miss Meredith	R.	Cured.
8	..	October 19th, 1891	Removal of ovarian cyst; appendages.	No.	Woman's Hospital	House staff	.....	R.	Improved.
9	..	October 17th, 1891	Removal of ovarian cyst; ovariectomy.	No.	Woman's Hospital	House staff	.....	R.	Cured.
10	..	.....	Pysalpinx; removed appendages.	Yes.	Woman's Hospital	House staff	.....	R.	Improved.
11	..	November 9th, 1891	Cystic ovaries; removed appendages.	No.	Woman's Hospital	Dr. Brownworth	.....	R.	Improved.
12	39	.....	Ovarian cyst; ovariectomy	No.	Woman's Hospital	House staff	.....	R.	Improved.
13	25	.....	Hystero-epilepsy; removed appendages	No.	Woman's Hospital	House staff	.....	R.	Cured.
14	36	November 13th, 1891	Large ovarian cyst; papillomatous condition.	No.	Woman's Hospital	Dr. Small	.....	R.	Cured.
15	52	November 13th, 1891	Double ovariectomy; large tumor	No.	Woman's Hospital	Dr. Byford	Miss Edwards	R.	Cured.
16	31	December 16th, 1891	Double pysalpinx; removed	Yes.	Woman's Hospital	Dr. Brownworth	.....	R.	Cured.
17	36	December 23th, 1891	Double pysalpinx with hematomata	Yes.	Woman's Hospital	Dr. Dodds	.....	R.	Cured.
18	29	January 8th, 1892	Double ovariectomy for pus tubes.	No.	Woman's Hospital	Dr. Brownworth	.....	R.	Cured.
19	34	January 11th, 1892	Double pysalpinx; removed.	Yes.	Woman's Hospital	Dr. P. H. Geert	.....	R.	Cured.
20	29	January 5th, 1892	Double pysalpinx; removed.	Yes.	Woman's Hospital	Dr. Bacon	.....	R.	Cured.
21	31	January 26th, 1892	Hematomata of ovary; double operation	No.	Woman's Hospital	Dr. Bacon	Miss Edwards	R.	Cured.
22	34	January 28th, 1892	Double pysalpinx; removed.	No.	Woman's Hospital	Dr. Bacon	.....	R.	Cured.
23	28	February 27th, 1892	Double pysalpinx; removed.	No.	Woman's Hospital	Dr. Brownworth	.....	R.	Improved.
24	40	March 23d, 1892	Fibroid; double ovariectomy	No.	Woman's Hospital	Dr. Bacon	.....	R.	Cured.
25	30	March 23d, 1892	Double pysalpinx; removed.	No.	Woman's Hospital	Dr. Bacon	.....	R.	Cured.
26	25	April 2d, 1892	Ectopic gestation; removed.	No.	Woman's Hospital	Dr. Bacon	.....	R.	Cured.
27	31	April 12th, 1892	Ovarian abscess; double ovariectomy	No.	Woman's Hospital	Dr. Bacon	.....	R.	Cured.
28	31	May 3d, 1892	Double pysalpinx; removed.	No.	Woman's Hospital	Dr. Bacon	.....	R.	Died six weeks later of gastric ulcer.
29	19	May 14th, 1892	Ovarian cyst; ovariectomy	No.	Woman's Hospital	Dr. Bacon	.....	R.	Cured.
30	23	May 18th, 1892	Large solid ovarian tumor; removed.	No.	Woman's Hospital	Dr. Bacon	.....	R.	Cured.
31	22	May 6th, 1892	Fibroid tumor; ovariectomy	No.	Woman's Hospital	Dr. Bacon	.....	R.	Cured.
32	15	May 21st, 1892	Ovarian abscess; epilepsy; double ovariectomy.	No.	Charity Hospital	Dr. Dodds	Miss Meredith	R.	Improved.
33	28	June 1st, 1892	Ovarian cyst; pysalpinx; double ovariectomy.	No.	Woman's Hospital	Dr. Brown	Miss Tobin	R.	Cured.
34	21	June 24, 1892	Pysalpinx; adherent, removed	Yes.	Woman's Hospital	Dr. E. White	.....	R.	Improved.
35	28	.....	Ovarian cysts; incised and drained.	Yes.	Charity Hospital	Dr. Dodds	Miss Meredith	R.	Improved.
36	26	July 1st, 1892	Pysalpinx; removed	No.	Charity Hospital	Dr. Dodds	Miss Meredith	R.	Improved.
37	45	.....	Pysalpinx; removed	Yes.	Charity Hospital	Dr. Dodds	Miss Meredith	R.	Improved.

one for solid ovarian tumor. These thirty-seven cases were operated upon without a death. Neither does this series of successes represent a lot with a death at either end. Back of them, in May, 1891, was my last death in this kind of work, there being nine successful operations between it and this report, and four successful ones since August 1st, 1892, making a gratifying and not altogether usual series of fifty consecutive cases without a death. This report, however, deals alone with the year's work of thirty-seven cases.

A successful operator, like an orthodox Christian, should be a trinitarian. The parallel holds good to the extent that if he neglects one member of the trinity he is as effectually lost as though he neglects all. The operator's trinity consists of: 1. Thorough preparation. 2. Thorough operating. 3. Thorough after-treatment.

For discussion this evening I wish to bring out three points in this connection, referring the hearer to the paper, when published in full, for elaboration of the above outline. The first will come under the head of preparation.

Preparation of the Kidney.—It is often a question of grave responsibility in abdominal surgery to determine whether we are justified in risking an operation with functional or organic disease of the kidney present. I have been in the habit of sharing this responsibility with another, and I have had every reason to be satisfied with the results. When a patient enters the hospital for an operation the house physician gives orders to measure the urine for twenty-four hours. It is carefully examined by him, chemically and microscopically. If in this examination it is found approximately normal in quantity, if it contains no albumin, pus, sugar, or casts, preparations are commenced for the operation, and finally, the day before the operation is to be performed, it is submitted to a second examination. If at this time it passes muster the patient is considered safe as far as the kidneys are concerned, provided they are carefully watched after the operation.

These precautions, however, have not always served me. I have had three cases, in which albumin was not present before operation, which developed serious symptoms subsequently, proving that my preparatory examinations of the secretion were at fault, and that in reality the patient had had an undiscovered nephritis when I operated, which was lying dormant only to be aroused into serious activity by the anesthetic. In two cases, through the valuable assistance of Dr. C. W. Purdy, I succeeded in saving my patients, while in the third I was not so fortunate. Dr. Purdy has for some time been making a study of just such cases, and I am glad that he has honored us with his presence to-night, and I hope he will give us his views as to when we are justified in operating on patients with kidney disease.

Drainage is the second point upon which a discussion usually

bears fruit. In the thirty-seven cases I drained nine times with the best of results, while in at least two of the remaining twenty-eight I had reason to regret not having done so. Wherever an enucleation of a tubal abscess is necessary and a large oozing surface is left; or when adhesions in ovarian cysts as a result of peritoneal inflammation are separated, leaving venous bleeding which cannot be readily controlled; or in enucleation of broad-ligament cysts leaving bloody surfaces, drainage is indispensable.

At the late meeting of the American Medical Association a prominent member of the Gynecological Section objected to drainage in abdominal surgery, using the theoretically plausible argument that the necessity of drainage implied that something had been left in the abdominal cavity which should have been removed. The impression that this surgeon left on the minds of his hearers, who were practical and experienced abdominal surgeons, was that the debater's experience had been extremely unique, or that he had done but a limited amount of operating. My experience is, that the more surgery one does and the better he becomes acquainted with the proper management of the drainage tube, the safer he feels to leave this monitor on guard and the oftener he resorts to drainage. *It never does harm in competent hands*; it saves many lives and makes more comfortable those who might not have died without it, but who have been given the advantages of it.

After my operation is finished the peritoneal cavity is flushed, if that procedure is considered necessary; then if there has been at the operation a process of enucleation, leaving, of necessity, slight oozing points, after drying the cavity as far as possible I place in the cul-de-sac a glass drainage tube and pump out any remaining fluid. I next protect the abdominal contents from the abdominal wound with a large flat sponge and insert the sutures, after which I again pump the drainage tube. If there is more than a drachm of bloody fluid I leave the tube in until the sutures are nearly all tied and the sponge removed, then I make a last trial of the tube. Of course the nature of the operation influences one in regard to drainage. I almost invariably drain after it has been necessary to flush. I believe the peritoneum is satisfied to a certain extent by flushing, and will consequently neglect, in a degree, to absorb any remaining fluid. Experience seems to sustain that argument. Mikulicz's drain is almost indispensable in a limited number of cases. Cavities may be packed with gauze which cannot be reached by a glass drainage tube. Hemorrhage in cavities so packed will cease when a glass drainage tube will not avail. Operations are now possible since the Mikulicz drainage which were impossible without it. The question for discussion is not "Shall we drain?" but "How often, how, and when?"

To Prevent Intestinal Obstructions.—In abdominal surgery one is constantly watching the behavior of the intestines. They

are our prominent point of attack in the preparatory treatment, they are our greatest source of anxiety during the operation, and upon their management after the operation much watchfulness is imposed. All of this anxiety is caused by our desire (with the exception of care against wounding when operating) to prevent obstruction. It is, therefore, a point in the technique of this work to which discussion may profitably be directed.

The pathology of obstruction following laparotomy is well summed up by a recent contribution on this subject by Dr. Ashton, of Philadelphia, from which I quote:

"1. Adhesions between the intestines and raw surfaces:

"(a) To an omental stump.

"(b) To denudations of the pelvic and parietal peritoneum.

"(c) To the edges of the vaginal wounds following suprapubic or vaginal hysterectomy.

"(d) To a pedicle.

"(e) To raw surfaces on the intestinal wall.

"2. Paralysis of the intestines.

"3. Local spasm of the intestines.

"4. Impacted feces.

"5. Bands of inflammatory lymph.

"6. Adhesions between coils of intestines, or between the gut and neighboring parts, due to traumatic inflammation.

"7. Kinking on twisting of the intestine, due to faulty technique.

"8. Including the intestine within the loop of the suture of the abdominal wall, or between the edges of the abdominal incision.

"9. Slipping of a coil of intestine through a slit or an aperture."

Under the first head, "Adhesions between the intestines and raw surfaces," we must seek our remedy during and following the operation. Intestines should be handled and exposed as little as possible, in order not to produce hyperemia or denudation of their surfaces. An omental stump of any considerable size should be selvedged by inverting its raw edges with a running catgut or silk ligature. Where the denudations of the pelvic or parietal peritoneum cannot be reinforced by a superabundance in the neighborhood, care should be taken to arrange the intestines in as near the normal position as possible. A pedicle of large size should be buried by sewing over its end, with a running stitch, its peritoneal covering. Raw surfaces of any considerable size on the intestines should be covered with an omental graft, the edges being well secured. Paralysis of the intestines may be avoided by emptying them thoroughly, previous to operation, of all irritating matter which may ferment and cause distention; by rendering the contents aseptic by means of bismuth and salol, and the employment of full doses of strychnine to act as a mus-

cular tonic. Carminatives, such as wintergreen, cardamom, etc., may also be employed as antiseptics and muscular tonics. During the operation, in order to avoid paralysis, the intestines should not be handled or chilled. After the operation, nourishment of a non-fermentable and easily absorbable nature should be employed. The bowels should be stimulated to early action, in order to keep them empty to avoid the beginning of distention, which soon leads to paralysis. An early movement of the bowels, or free passage of flatus, too, assures a normal disposition of the intestines as regards location. If they adhere after such action it will be in an advantageous, not cramped, position. Impacted feces as a cause of obstruction plainly points its own remedy.

A flat sponge placed beneath the abdominal wound, after carefully spreading down the omentum before the wound sutures are inserted, will avoid including an intestine within the loop of a suture or between the edges of the abdominal wound.

When ventral fixation of the uterus is practised great care should be exercised in disposing of the intestines in such manner as to avoid their slipping through the opening left between the uterus and the abdominal wall.

Treatment of Pelvic Suppurations.—Another question which is again being revived and discussed with cyclonic vigor by our brethren east of the Alleghanies is the method of treatment of pelvic suppuration. One giant starts the ball by advocating vaginal incision and drainage in a large percentage of cases. Giant number two, of a neighboring city, in terse language condemns such treatment as entirely unjustifiable in the light of his pathology, and recommends abdominal section with complete enucleation in all cases. In such a discussion it is always convenient to find one's self committed to neither side while the evidence is being brought forward by the respective advocates and while collecting experience on one's own account. The more one operates and becomes familiar with pelvic suppurations, the more one is inclined to go into the abdomen, to unravel the tubes and ovaries, the invariable (with rare exceptions) seat of such suppuration, and make a sure thing of the case by removing them. In other words, while most of us might open a pelvic abscess of long standing, which is pointing low in the pelvis, through the vagina and drain it, we are pretty certain, from our surgical experience in the abdomen, that that other side entirely disconnected from the first is also suppurating—at least we have only temporized and must finish at some later date or allow the woman to go on suffering. I must confess that I never have found pus in the pelvis that it was not directly traceable to the Fallopian tubes. Again, I must confess that I have rarely found pus in one Fallopian tube that both were not infected. Case VI. in my year's work was a notable exception to this. The right side only was infected, the ab-

cess being enucleated with great difficulty, involving, apparently, the head of the cecum. The source of infection was undoubtedly the appendix vermiformis. That, of course, takes it out of the category of strictly *pelvic suppuration*. It is a comparatively easy matter to enucleate a tubal abscess after a little practice. Where we find one tubal abscess we are liable to find two. When we go at these abscesses through an abdominal wound we can remove both sources of pus, together with their walls and secreting surfaces, through one opening. When the abscesses are removed in this way the patient is at once put in a position to get absolutely well in as short a time as she can recover from a laparotomy—say, four weeks.

It is a comparatively easy matter to incise an abscess which can be felt through the roof of the vagina. It is an easy matter, after the pus flows out and the opening is dilated, to put in a drainage tube and wash out the cavity. It may be an easy matter for a nurse to continue this washing-out process for several weeks or months. It may not be necessary in all cases for the drainage tube to be worn for a long time, but in a large percentage of cases drainage for a considerable time is required, while in a few it goes on forever. Now, after all this, but one tube is drained, unless two incisions have been made—and this is not often likely to be the case, as one side is more liable to appear prominently than both. The case is left unfinished, therefore, or at least in uncertainty.

With our present light, then, granting the immediate mortality to be about the same with either operation, I should most emphatically favor the abdominal operation for pelvic suppuration, except in very rare instances. What those rare instances might be I am not prepared to say. The following case will illustrate some of the interesting points:

CASE.—These specimens which I present were removed from a patient referred to me by Dr. Julia R. Lowe, of this city, about four weeks ago. The woman, a widow about 35 years of age, had complained of pelvic trouble since the time of her marriage. She gave a history of two or more slight attacks of peritonitis occurring during the past eight years. I was first called to see the patient in consultation during a severe attack of local peritonitis, which was diagnosed peritoneal infection from the tubes. At this time the temperature was 104° , pulse above 100, moderate distention of the lower abdomen, and the patient was considered in a very critical condition. Symptoms had arisen during that day, however, which led us to believe that limitation had occurred, and for that reason we decided to wait for a more favorable time for an operation. Three days later, after a lull, a chill ushered in more aggravating symptoms, at which time Dr. Fenger was called in consultation. When we arrived the symptoms again had somewhat abated, and it was the unanimous opinion that an operation should be at once

resorted to if there should be symptoms of further extension, otherwise wait for a time of selection.

The patient improved from that time, and in about a month she was carefully removed to the Haseltine Sanitarium, where, assisted by Dr. J. B. Bacon, I operated. Upon vaginal examination a fluctuating mass could be felt in the Douglas cul-de-sac through the vaginal vault. It certainly seemed as though the pelvis could be drained from that point. Laparotomy, fortunately, was selected as the proper method of reaching the source and removing the difficulty.

On opening the abdomen I came upon a mass of adherent omentum and intestines which had effectually shut off the lower portion of the pelvis. The colon was transversely attached across the uterus and the broad ligaments, rendering it necessary to dissect it off before the tubes could be reached. Then, with great difficulty, first the right tube, containing a pint of pus, was enucleated, and afterward the left, containing fully six ounces of pus, was also removed. The right tube was ruptured while being delivered through the abdominal incision. The abdomen was thoroughly flushed and a glass drainage tube employed. Following the operation the patient's temperature never rose above $99^{\circ}5$, and her recovery has been ideal. She left the Sanitarium the twenty-fifth day after the operation.

Upon subsequent examination there was not a square centimetre of surface of either of the enormously dilated tubes which had not been adherent. What would have been the result of vaginal drainage in the above case? How would one have drained both tubes? Would the result have been so satisfactory if they had both been reached by two vaginal incisions? How are we ever to know whether the pus is in one side of the pelvis, in one pocket or two, or whether both tubes or sides contain pus in two or more pockets, without going into the abdominal cavity? How else, except by abdominal incision, can we peel out these abscesses, with their pus-secreting walls, but by laparotomy?

I have avoided reciting these thirty-seven cases in detail, and have endeavored to lay down a sort of programme for discussion which has been thoroughly impressed upon me by the work represented by them. The points are:

1. When are we justified in operating upon patients with kidney disease? How shall we manage laparatomies which develop kidney complications?

2. Drainage—not, Shall we, but When and how?

3. Intestinal obstruction—how to prevent.

4. How shall pelvic suppurations be managed?

DR. A. REEVES JACKSON.—I have no doubt that when our Secretary appointed me to open this discussion he intended to confer both a kindness and an honor: and yet if I had known of his purpose prior to the matter going into the hands of the printer I should certainly have declined. For when I first

learned the title of the paper and its purport. I confess it gave me a rather unpleasant impression. I had hoped and believed that we had reached the end of papers of this class; but since I am in error, and they are still current, I have something in the way of adverse criticism to say concerning them. And in doing this I desire to have it clearly understood that my remarks have no reference to the present essay except in so far as the latter furnishes a text. There was a time when such papers furnished a useful purpose; a time when abdominal and pelvic operations were novelties, when we were glad to hear from the masters what they were doing. Many of us did not then know when or how to make these operations, and we were glad to learn of both methods and results. At that time these reports of omnibus operations, "My Year's Work in Ovariectomy," "My First Hundred Cases," "My First Fifty Cases," and so on, were really of use, and we were glad to have them. By and by many disciples arose and filled the field—crowding it, indeed—some of them irresponsible, some perhaps not very conscientious, but all of them ambitious, and they soon discovered that by reporting some successful cases (and most of the cases reported were successful) they gained a degree of notoriety, some fame, and a personal advertisement without the infraction of any code, unless possibly it were the code of modesty. They imagined, perhaps, that the work they were doing interested the world at large as much as it did themselves. This was a mistake.

A few years ago, during the height of this pelvic-operative period, the *Pittsburg Medical Review*, in order to furnish a vent for some of these young aspirants, invited contributions and received them. They came from all quarters, and were tabulated and published for nearly two years. Everybody had a chance to put his case or cases in that journal. But by and by the editors discovered that there were some false entries in their books, some of their authors had been lying, and the account was closed. I remember an interesting episode in the history of that time. A man in West Virginia reported his year's work in abdominal and pelvic surgery. He had seventy-five cases. He lived in a small country village, and it seemed rather astounding to experienced men that he could gather in so many victims within so small a radius. His reported success was simply marvellous. It attracted a great deal of attention. It surpassed in all essentials all previous similar reports, and threw the latter quite into the shade; it out-heroded the Herods. They were astounded and looked upon it with a great deal of suspicion. They thought the man lied. Perhaps some of them knew how it was themselves. At all events, it so surpassed all the efforts which they had made in this direction that the latter seemed puny in comparison. They resented and belittled it; and conservative men laughed at the West Virginian—and at them.

I repeat, that when I learned the title of this paper I regretted

it, because I thought we were going to have something of an objectionable character again; but I am glad to say that, instead, the report is a most creditable showing, and the paper has proved to be highly interesting to me. The suggestions made by the essayist are of a most practical character. It has given me so much pleasure that I now feel that I could endure even another. Nevertheless, since thousands and thousands of cases have been published in detail with great minuteness, I think the time has come when we are hardly in need of so much instruction upon these points as we were some years ago.

I congratulate our esteemed Fellow upon his remarkable success and his very excellent paper. I do not intend to speak upon the details of treatment. I have no fault to find with them, no criticism to make; they are unquestionably admirable. I will only say, in conclusion, that I would like to hear the paper fully discussed, especially those points indicated by the essayist.

DR. HENRY T. BYFORD.—I agree entirely with the views of the author in regard to drainage. One thing that I believe more than anything else in abdominal surgery is that we should avoid all unnecessary manipulation, and in so doing we often relinquish our efforts at checking all hemorrhage. There may be said to be two ways of operating: one is to lay open the abdomen by a long incision, and examine and treat every oozing surface; the other, to make a small incision, pay but little attention to moderate oozing, and drain. The latter method is, I believe, employed largely by Lawson Tait; the former method is employed largely by German operators. And I confess that I am in favor of drainage rather than much manipulation. I have seen more patients die from too much manipulation than from subsequent hemorrhage.

With regard to the prevention of obstruction or paralysis of the bowels, there are two important items worth mentioning. First, the thorough preparatory evacuation of the bowels. And I think that there are very few young or new operators who know how to properly move the bowels on such occasions. If you give sufficient medicine to produce merely three or four movements, you will find your patient, twenty-four hours after the operation, with a high temperature and severe tympanites; and in bad cases this condition may make all the difference between recovering and dying. The patient should have at least eight or ten movements of the bowels the day before the operation. Then the abdomen will remain flat, the temperature low, and the patient will not require morphine, which favors intestinal paralysis and obstruction. The second item is the administration of an enema for distressing tympanites after the operation. Its action is prompt and usually efficient.

I cannot quite agree with Dr. Martin in always opening the abdomen for pelvic pus. In the first place, he says that pus always comes from the tubes. That is not so. We cannot see

anything but tubes nowadays. I remember at one post-mortem that the pus was found in the connective tissue between the bladder and the uterine tubes, without disease of the tubes. I remember many cases of pelvic hematocele resulting in suppuration in which there was no evidence of disease of the tubes. When one tube is affected, that is not proof that the other tube is affected; in fact, both tubes are not usually affected in the beginning, but rather in cases of long standing. I remember removing a suppurating ovary a year ago where the tube was filled with pus, and the opposite tube and ovary were perfectly healthy and have remained so up to this time. The patient made an unusually quick recovery and had none of the usual bad symptoms, such as tenderness, sensitiveness, etc. In another case I evacuated a hematocele which was commencing to suppurate. I removed a fibroid uterus from the same patient two or three years afterward, when I found that this abscess had come from the right uterine appendages and that there was nothing left of it but frail adhesions which made no trouble. In fact, the patient was canvassing books for a living two months after the operation. I have time and again evacuated abscesses through the vagina and rectum, and all of the patients got well, excepting one who died of pneumonia. Dr. Martin says that the mortality is about the same. I cannot agree with him. The mortality of removing pus tubes is about ten per cent.

In the case which Dr. Martin refers to, what would have been the harm in opening one of the abscesses through the cul-de-sac of Douglas? There would then have been less temperature, and the patient would have been in a better condition for subsequent operation which would have been only half as severe. Other things being equal, it is safe to suppose that the patient would have been better off. Of course no one would maintain that abscesses high up on the posterior surface of the broad ligament should be opened through the vagina, but there are many that are low down and can thus be easily and safely reached. I have had my fingers in a great many tubal and other abscesses through the rectum and vagina. I once evacuated an abscess through the rectum and then punctured another abscess higher up through the one already opened, using sharp-pointed scissors both times. Both abscesses healed up quickly.

The rapidity with which pelvic abscesses that have already discharged per vaginam or per rectum will heal up when properly enretted, and the subsequent good health of the patients, are suggestive.

DR. CHARLES W. PURDY.—I was asked to be present to-night and listen to Dr. Martin's paper, which I have done with a great deal of interest, and to say something in reference to the relation of surgery to disease of the kidney. I have not had time to prepare any remarks for this meeting, but the subject is very interesting to me and one to which I have paid especial

attention in the last year. We are all aware, doubtless, that to operate upon a patient who has a diseased kidney is an act which is attended by more or less risk—just how much has probably never been accurately determined. No less an authority than Sir Henry Thompson says that to place a patient upon the operating table who has Bright's disease is to slaughter him outright. I believe that I have proved within the last year that this is not always the case. I believe that I have proved further that selected cases can be operated upon without a very great risk; I would put the risk at ten per cent. I speak of that particular form of kidney lesion which the gynecological surgeon will, as a rule, meet with—chronic Bright's disease, or interstitial nephritis. The age of a patient with interstitial nephritis generally tallies with the age of patients that are usually operated upon for disease of the tubes or ovaries, etc. These patients are rarely less than 35 years of age and more often 40 or 50 or over. But before going any further into the question it would perhaps be better to give you a few facts. I have had altogether within the last year five or six cases of Bright's disease which have been subjected to surgical operation and recovered. Of the cases mentioned in Dr. Martin's paper the first one was in April last. I was asked to see the case, and found the woman in uremic coma. She was totally insensible for three or four days, and I think had convulsions. We succeeded in rescuing her by establishing the urinary function, and she got about. It subsequently proved that she had interstitial nephritis, or chronic Bright's disease. She is still alive and quite well except for the kidney trouble, which may not disturb her for ten or fifteen years under proper treatment. It has occurred to me that cases of interstitial nephritis could be rescued from uremia after surgical operation, that by preparing the system beforehand these cases might possibly be operated upon, and I hoped some day to have a case that would afford sufficient excuse to undertake the operation. Such a case presented itself in a patient who came here from St. Johns, Mich., the daughter of a physician. She was about to be operated upon by Dr. Fenger, but on the morning he was to operate the house physician said that the patient had albumin in the urine, and the case was referred to me for an opinion as to the condition of the kidneys and the advisability of operation. I made a very critical examination of the case and found chronic Bright's disease, or interstitial nephritis, moderately well advanced. I should say the kidneys were contracted at least thirty or thirty-five per cent—that is to say, their capacity was diminished at least that much, if not more. The case was such that it was Dr. Fenger's opinion that the patient must die without an operation, and that within a short time. I stated to the patient and her friends that I believed by preparation of a month the operation might be underta-

ken. There would be some risk; I did not wish to underestimate it, because it was in a measure an experiment, but I would place the risk at twenty per cent. And the patient became anxious for the operation and agreed to place herself in my hands for a month's preparation. The patient was sent home and directed to live upon a diet strictly non-nitrogenous for a month—no meat whatever, milk and mostly gruels, fruits, and farinaceous foods. Ten days before the operation she was put upon a diuretic, the acetate of potassium, and the quantity of urine was run up to one hundred ounces per day and kept there till a few days before the operation. She then went into the hospital and the operation was performed by Dr. Fenger, who removed a forty-pound myocystoma. After the operation the patient never took a dose of medicine. She made a rapid recovery and is to-day about her usual duties. I was not surprised, because I believe this is quite possible in that particular class of cases; there is no reason why it should not be. When we speak of parenchymatous disease I am not prepared to say what we can or cannot do. In diabetes, of course, we should not operate, for other reasons, as you know. But in early cases of interstitial nephritis, where there is a normal quantity of urine which does not show a reduced specific gravity under 1.010 to 1.014, and where the amount of urea does not sink lower than six or seven grains to the ounce, and the patient is well preserved generally, without any advanced heart disease, I believe such cases may be operated upon with comparatively slight risk. At any rate, where they have a disease that is going to shortly terminate life, they should have the advantage of the operation, which will not diminish their chances of recovery, I am satisfied, beyond ten per cent, under proper management.

Now, cases of interstitial nephritis—and what I have to say to-night will be limited entirely to that particular form of kidney trouble—are most difficult of diagnosis. They are unprofitable cases to life insurance companies, and risky ones to surgeons in general, because they are very apt to escape detection before an operation, because the chief reliance has always been the detection of albumin in the urine, and it is very well known that interstitial nephritis is very often unaccompanied by albumin in the urine. I have published one hundred and seventy cases where the autopsy has shown contracted kidneys and no albumin in the urine during life. Then the very practical question comes up, how are we going to diagnosticate these cases, how are we going to know, if we cannot depend upon albuminuria as the certain index of this condition? And we certainly cannot. To diagnosticate interstitial nephritis we have to go back of albuminuria. It is only one symptom of renal disease, and it is not always a symptom of renal disease; very often it is a symptom of something entirely outside of the kid-

neys. Now, in order to diagnosticate these cases I should lay down these landmarks: These patients are almost invariably above 35 to 40 and up to 60 years of age. They are invariably persons who have gout or have been large eaters of meat. If the kidneys are overtaxed by a highly nitrogenous diet, as a man passes 40 they begin to tire and contract, and we have interstitial nephritis. Therefore, in looking into the history of these cases we look for gout; we look for their habits of eating. They are usually people of generous appetites, who eat meat three times a day, and of course it gives the kidneys three times the work that a mixed diet would.

In reference to the immediate symptoms of the patient, nine-tenths of these patients have an enlarged left ventricle of the heart; but before we find any evidence of enlargement of the heart, such as the increased area of cardiac dulness to the left and below, we will find a very sharp accentuation of the second sound of the heart, and we will find a very tense pulse; the radial pulse is very hard, very full, and very tense. These patients, almost without exception, rise at night to pass their urine. If a patient beyond 40 years of age rises at night to pass urine more than once, or even once habitually, and there is nothing to account for it in the way of an irritable bladder, stricture, or cystitis, it is one of the most constant symptoms of interstitial nephritis, although it is not always present. So we have the habits of the patients, their history, and their symptoms. If albuminuria cannot be looked upon as a certain index to interstitial nephritis, other conditions of the urine must be present—namely, the quantity in these cases is usually normal or slightly above; the specific gravity is invariably diminished, because a contracted kidney can no longer perform its usual function. If it is a very early case the specific gravity will be reduced to 1.017 or 1.018, and in such cases we will not have any trouble with our operation; but if the patient has a normal quantity of urine and the specific gravity is 1.010 to 1.014, we have a moderately advanced case. I think Dr. Martin's rule is a wise one, not to depend upon any single sample of urine: and the more practice I have in these cases the more I see the necessity of that point. Of course, if we take twenty-four hours' quantity and take the specific gravity, we know where we stand. Place the patient upon an ordinary mixed diet, and if the specific gravity of the urine is 1.010 to 1.014 we go further and examine for urea. If the quantity of urea corresponds with the specific gravity of the urine, and we find, instead of ten grains to the ounce, seven, eight, or six, the disease is advanced and we have something very tangible to show that the kidneys are incompetent: we have a lowered specific gravity and a lessened quantity of urea; the patient rising at night; we have an accented second sound of the heart; and we have interstitial nephritis in such cases, whether there is albuminuria or not. Of course it is desirable

to make a microscopic examination of the urine to find hyaline casts. It is very difficult to find these small casts in interstitial nephritis, unless the greatest care is exercised. You may not find them by ordinary methods. If the urine is concentrated you may find them, although not at the first glance. They are among the most difficult products to find in the urine. I find them in this way: I take a urine glass holding about four ounces; I fill that with urine and add a half-drachm of saturated solution of resorcin, cover the glass and let it stand for one or two days (the resorcin will keep the urine from decomposing for a week). After a day or two I take the bottom drops from the glass and place them under the microscope. I focus carefully, having the field rather dark, and if there are casts I will see their shadows, and focussing with a fine adjustment I will be able to see the casts. I have never used staining agents to discover these casts. What I have said has been limited entirely to interstitial nephritis, chronic Bright's disease, or contracted granular kidney. I have made no investigation with reference to operations in cases of chronic parenchymatous nephritis, but I see no reason why those cases, if unaccompanied by dropsy, may not be operated upon in selected cases.

One other point I would refer to. We all know that if we perform an operation on a patient under anesthesia the urine diminishes, even if the kidneys are perfectly sound—the quantity of urine for a few days will fall to perhaps half the normal quantity; and this I believe is due to the anesthetic. Of course the shock of the operation may have something to do with it, but I believe the main cause is the anesthetic. Now, if, in addition to the above, defective kidneys be present, the latter become entirely paralyzed, entailing uremia, which, if not promptly remedied, results in the death of the patient.

DR. A. REEVES JACKSON.—The relations of disease of the kidney to pelvic and abdominal operations are of course important, and most surgeons would hesitate to perform a serious operation so long as they found albumin in the urine or a scanty condition of the secretions. But while this is and should be the rule, may we not conceive of exceptions? For example, suppose the disease demanding operation be an ovarian cystoma—a condition attended frequently by rapid growth, and the tendency of which toward death is about as inevitable as a malignant disease, although not so rapid. Most of the diseases of the kidney which are attended by albuminuria are of much slower growth. In a case marked by such co-existence of such forms of disease should we not sometimes ignore the presence of the one which is killing the least rapidly, and which may not kill at all? Indeed, the removal of a large abdominal tumor frequently is followed by very sudden and very marked improvement in both the amount and character of the urinary secretion.

DR. FRED BYRON ROBINSON.—Dr. Martin's paper would draw

a man's attention to four points: 1. Kidney disease. 2. Anesthetics. 3. Drainage. 4. Secondary visceral disease following pelvic disease.

In regard to *anesthetics* I have been observing cases with some care for some time. About six years ago I gave a girl ether for about an hour and a quarter. Before the etherization that girl of 18 was as healthy as girls grow. She had nephritis for one year after the anesthetic was given. This was the first case that called my attention to disease following anesthesia. Since that time I have been watching for *nephritis* and *bronchitis* to follow the administration of ether, and I have not watched in vain. Any one who will direct his attention to these *etherized* patients will be amply repaid by the observation. I am convinced that one should look out well for weak kidneys and lungs before producing long-continued etherization. I would also call the attention of operators to the idea that their patient who underwent a long anesthesia may not have immediate nephritis or even bronchitis, but the kidney (or lung) trouble may supervene months after the operation. But the anesthesia precipitated the incipient stage. Now, the danger with chloroform is on the heart. I have watched the effect of chloroform many times on man and very carefully on some two hundred and fifty dogs. I am at present convinced the danger lies with the heart. Many and many a time we have resuscitated an almost lifeless dog and several humans. The effect of the chloroform seems to be chiefly on the cardiac centre in the medulla, because the dogs or patients are best resuscitated by hanging them up by the heels and allowing the blood to flow (by gravity) to the fourth ventricle. A curious incident in regard to chloroform is that I have seen scores of chloroformed patients in England, but I never once saw disastrous appearances nor dangers, while in this country I have seen and experienced events where I thought the patient would never recover. In the great centres of medical work in Germany it is not infrequent to witness death from narcosis. Something must be due to climate, nativity, and the anesthesia material. Then, as nephritis and bronchitis may follow etherization and cardiac failure follow chloroform narcosis, we should examine the cases carefully and occasionally try the A. C. E. mixture introduced by Prof. Billroth years ago. A man should carefully attempt to distinguish the nephritis from anesthesia and the nephritis due to reflex irritation through the hypogastric and renal sympathetic plexuses.

The second point which I would call attention to in Dr. Martin's paper is kidney disease following pelvic (or visceral) disease and operations for the removal of diseased viscera. The basis for kidney disease following laparotomy lies in the abdominal brain. The most manifest pathology of the sympathetic is by reflex action. The reflex action is by way of the hypogastric and ovarian plexus (for the pelvic organs). Now,

it is well known by careful observers that soon after a woman acquires pelvic disease or an abdominal tumor other viscera suffer. If the tumor be a uterine myoma the irritation travels up the hypogastric plexus to the abdominal brain, where the irritative force is reorganized and sent out to the kidney over the renal plexus, and kidney disease results. Again, the irritation from the uterus travels up the hypogastric plexus to the abdominal brain, where the force is reorganized and carried up the splanchnics to the cervical ganglia of the sympathetic, and here a reorganization of the irritative force occurs and it is sent to the heart over the accelerator nerve of Ludwig or Cyon to the heart. The woman then suffers from palpitation or heart disease. These same women suffer from gastro-intestinal disease in the same manner. The irritation travels up the hypogastric or ovarian plexus to the abdominal brain, and there it is reorganized and sent out over the gastric, superior mesenteric, or inferior mesenteric plexus, and the result is indigestion. If, for example, the irritation goes from the uterus up to the abdominal through the hypogastric plexus, the reorganized force will be emitted over the superior mesenteric plexus to some twenty feet of small intestine. Now, the small intestine is the business portion of a man's digestive tract. Now, the movement or peristalsis of the gut is governed by Auerbach's plexus, and the secretory part of the gut is controlled by Meissner's plexus. As the irregular irritative force travels over the mesenteric plexus it first strikes Auerbach's plexus and starts peristalsis (colic); and, as it goes on, the force strikes Meissner's plexus and makes the glandular part of the gut secrete too much digestive fluid, or too little digestive fluid, or a disproportionate quantity (vitiated secretion). The result of all is malnutrition, or indigestion. With vitiated secretion the woman gets wind on the stomach from the *fermentation* due to abnormal secretion. Thus these women have *first* a pelvic irritation; *second*, a malnutrition or indigestion through reflex irritation—the irritation is always reflected through the abdominal brain; *third*, these women become anemic from malnutrition; *fourth*, these women become neurotic. So that the pathology lies in the sympathetic, and is told by *irritation, malnutrition, anemia, and neurosis*. The philosophy is that pelvic irritation disturbs the *visceral rhythm* of the gastro-digestive tract, the liver, heart, spleen, and *kidneys*. The worst kidney trouble follows cutting-off of the hypogastric and ovarian plexus. This is so because the kidney, Fallopian tube, uterus, ovary, and vagina arise out of the Wolffian body, and hence are physiologically and anatomically connected. The standard of test for an operation on any woman in regard to the kidney is the amount of urea she has in her urine. An ordinary-sized woman should not be operated upon unless she has at least two hundred and fifty grains of urea a day. She should have at least seven

grains of urea to the ounce of urine. Albumin is not reliable as a standard. I have seen a woman have hysterectomy performed and three to five days after the test tube would be three-quarters full of albumin. In such a case it is likely that the cutting-off of the hypogastric and ovarian plexus precipitated an old kidney disease, in the same manner that laparotomy simply precipitates insanity from some prolonged exhausting process. Relative to drainage, I would say that the drain tube is a splendid safety valve, and that a man should drain always when he is in doubt about all débris being removed from the abdominal cavity. I leave the tube in from fifteen hours up to several days. The danger of infection from the air through the tube is scarcely anything. Mr. Tait does not cover up the end of the tube, but orders the nurse to "suck" the drain tube out every fifteen minutes to many hours. I suggest that we change our glass tubes for aluminium. Glass may break. I notice in Dr. Martin's report that a large majority of his cases are pyosalpinx. This is very suggestive, as nearly every pyosalpinx follows *labor*, *abortion*, or *gonorrhœa*; but gonorrhœa is the main cause. No doubt a pyosalpinx often ends as a hydrosalpinx. I think that bowel obstruction in laparotomy is nearly always *paresis* if immediate after the operation. If the obstruction be remote from the operation it will be a *band adhesion* or *traction*, or some force which destroys peristalsis. It may be noted that one and one-half per cent of all laparotomies die of intestinal obstruction.

DR. D. T. NELSON.—There has been so much said it is hardly necessary for me to say anything, but perhaps I can go back and emphasize some of the points that have been made and bring them out a little more prominently.

The Preparation of the Patient.—Dr. Martin has spoken of the kidneys, and referred in a passing manner, with I think too little emphasis, to the emptying of the bowels. I do not know but I am a crank in that direction. But I am sure my patients feel better for it. The alimentary canal should be thoroughly evacuated, and in the experience I have had in a number of instances I *do not know* that it is thoroughly evacuated until I see a number of the stools, and so I am constantly inquiring for them. They are almost always disposed of, and no one knows anything about them except that the patient has had a certain number of evacuations; but I do not care whether it is ten or thirty, I want to know what is evacuated. Are they hard masses and dark-colored, or thin and bright yellow or green in color? I am constantly using the mercurials, as nothing else so well accomplishes the result I want. If the stools, as they say at the stockyards, are burnt like black walnut, or if they are very light-colored like manilla paper—in other words, if there is none of the unchanged coloring matter of the bile in them—I am not satisfied with the condition of the bowels; and while I have ope-

rated under protest a number of times on patients with that kind of stools, I have invariably had trouble, not severe perhaps, but annoying. The patient is filled with gas, and the intestines come out by the handful at the time of operation, and they trouble the patient afterward. The abdomen is filled with gas, for there is a fermentable material in the feces, unless the bile is present which gives the yellow or green color to the stools, such as you will see in the infant nursing its mother; or the greenish color, that means there is a little disorder of the baby's alimentary canal. When you get that character of stool I do not think you will be troubled much with intestinal gas or fulness of the abdomen after operation, but, so far as I know, nothing but the mercurials will give it thoroughly and quickly. We should not only evacuate the bowels and get stools of a proper character, but we should send antiseptics down through the alimentary canal and stop further fermentation. I believe none too much stress has been laid upon the kidneys. Dr. Robinson has well said that at the time of these operations we have reflex paralysis from irritation or other reasons—that means a stoppage of the secretions of the liver, most likely; it stops the action of the gastric juice and the food is not digested; you stop the action of the kidneys; you interfere with the action of the lungs and with all this great sympathetic system. You give your mercurials, and follow that with salol, hydronaphthol, essence of wintergreen, or any of the antiseptics you favor, and the kidneys and other organs will do their full work. Do not be content with measuring the urine for one day, but for a week. Do not be content with the examination of one specimen drawn, but see how much is passed in twenty-four hours, and examine the specimens day after day. And for that reason I think the patient should be under observation and preparation at least a week before a serious operation. I think we should all make a careful study of anesthetics. Chloroform calls for power of the heart; I have had an experience in that direction which makes me always exceedingly nervous when I know that chloroform is being administered. Perhaps it was my early education at Harvard which instilled into my mind that ether could not kill and that chloroform frequently killed, as I have seen it do in the army. But is it the ether that produces these effects for which ether is blamed, or is it the prolonged anesthesia, the prolonged destruction of consciousness? Does that creep over into the sympathetic system somewhat, and does it begin the death-making process in that region? Does it give you a diminution in the power of the lungs, the stomach, the kidneys, and other organs, the liver as well, whereby when they come out of the ether the kidneys are swamped with urea, the lungs overpowered with carbonic acid, the liver overpowered with urea and its excretions? I very much doubt if the kidneys excrete urea in the sense of manufacturing and throwing it off. I am inclined to believe—perhaps it is from the clinical results—that the

liver has much more to do with the getting out of the blood the urea, or the materials out of which it is made, than have the kidneys. I mean essentially getting it out; the kidneys simply remove it, but may not make it. The more prolonged an operation the greater the danger from ether, from the disturbance of nutrition in every way. If the operation can be short I do not believe that ether will ever be dangerous; there comes in an argument in favor of celerity.

Drainage.—"The drainage tube never does harm." I hope the doctor, when he comes to revise his paper, will change that, for it seems to me that will be severely criticised. Drainage sometimes does good, but I believe it is always a misfortune. It is an open door into which sepsis can readily go. It is a foreign body which Nature resists; she shuts it up within a very few hours from all the rest of the cavities and proceeds to institute adhesions where you do not want them. It invariably leaves a weak place in the abdominal wall where herniæ may afterward come. It is always a misfortune, and I want to leave it out if I can; if I can stop hemorrhage, if I can be sure the parts are thoroughly clean, I always close. As to Dr. Byford's dilemma of a free opening, stopping hemorrhage in that way, or drainage with a small opening, I should decidedly join the first army, making a free incision where everything could be exposed, and adhesions observed and tied before cutting, rather than go into a small opening blindly. You do not know a thing about the anatomy of the parts. It is not a month since I opened an abdomen and found the appendix away off on the left side and attached to the intestine—what one I have not the slightest idea, whether it was the transverse colon drawn down or the descending colon, and how it got there I do not know; but I tied it and put it back where it belonged. An ovarian tumor had grown up into the place where the appendix ought to be, and pushed it away to the left. So you cannot determine until you get into the midst of a case what the anatomy is. I would make a free opening, take time to stop all bleeding, and avoid drainage if possible.

Dr. Purdy speaks of a patient operated upon having interstitial Bright's disease and now well. I would like to know whether the Bright's disease has entirely disappeared.

In reference to the treatment of the patient after operation, I think that is very important. The excretions are by the lungs, kidneys, bowels, and skin. The lungs and skin will do very well probably, the bowels you may feel obliged to leave quiet, and how can you reach the kidneys? There is no better diuretic known than pure hot water in abundance; if this is given freely in teaspoonful and increasing doses, it will soon set the kidneys going. I believe it is the opinion of all operators now that hot water shall be given freely after an operation. Paresis of the intestine, while partly reflex, I believe is more commonly due to

overdistention, the same as the deltoid by distention in dislocation of the shoulder prevents a man from raising his hand to his head. If you keep gases away from the stomach, and gas and fermentable material out of the large and small intestines, you will have little difficulty with paresis.

DR. FRANKLIN H. MARTIN, in closing the discussion, said: Dr. Byford misunderstood me in regard to pus never appearing in the pelvis except in the tube. I said that I had never seen pus in the pelvis in abdominal work except where it was the result of infection through the tube, except in one case where the infection was through the appendix. The reason I quoted Dr. Ashton's pathology of intestinal obstruction was because Ashton in his paper gave a series of cases, which he had collected from all over the world, which led him to make the summary which I read. I know from my own experience that obstruction of the bowels may result from adhesion to the stump or the raw places in the abdomen; in fact, the last death under this head that I had was one of that description, in which the woman died six weeks after the operation from obstruction caused by adhesion of the bowel to the stump. So at least in one instance the statement of Dr. Robinson would not hold good. Dr. Nelson says he would not drain unless it was absolutely necessary, which would, of course, mean in those cases where there had been extensive enucleation, and where there were raw and bleeding surfaces that could not be controlled by any other method. I agree with him perfectly there, although I do not believe in spending an enormous amount of time in trying to stop oozing that could be relieved in a shorter operation by the drainage tube. What I said about the drainage tube, which will also apply very well to the point in regard to sepsis, was this: "Draining the abdominal cavity never does harm in competent hands." I mean, where the nurses are perfectly trained, sepsis should not gain entrance to the abdominal cavity. Of course if we have poorly trained nurses, and must attend to the cases ourselves, it would be almost impossible to drain; a dirty nurse would kill the patient every time.

I am very much gratified at the way this paper has been received, and I have learned a great deal from the discussion. I am also under great obligations to Dr. Purdy for what he has said.

TRANSACTIONS OF THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, November 3d, 1892.

The President, ALFRED L. LOOMIS, M.D., in the Chair.

ABNORMAL CONDITION OF ORGANS AND TISSUES CONTAINED WITHIN THE ABDOMINAL CAVITY WHICH SIMULATE AND MAY BE MISTAKEN FOR DISEASES OF THE UTERUS AND ITS APPENDAGES.

DR. W. GILL WYLIE read the paper of the evening, bearing this title. He first referred to some change of views regarding gynecological subjects the past ten years. He had written a paper eight years ago in which he took the ground that practically there was no such thing as chronic pelvic cellulitis, and that the best treatment for supposed conditions of that kind was to open the abdomen and remove the diseased tubes and ovaries which usually would be found to exist. To-day this was the accepted doctrine. He had also predicted that before many years had passed gynecologists would find that they had taken an erroneous view of many facts, more especially as to the exaggerated importance attributed to uterine displacement. Later, in a paper on ante flexion and its associated pathological conditions, he had pointed out that the real cause of the subjective symptoms was not, in many cases, the flexion at all, but a form of chronic endometritis with an indurated condition at the os internum, and that the most effective treatment was by passing a steel dilator and inserting a drain, which should also overcome the tendency of the sphincter muscle to powerfully contract.

While text books might not show a general acceptance of these views, as they were slow to take steps forward, yet practical gynecologists acted upon them and gave them their indorsement in monographs and society discussions. At medical societies one now heard little about uterine displacement, but much about sepsis, drainage, diseased appendages, laparotomy.

The remaining part of the paper was devoted to a brief review of some abdominal conditions which he had become acquainted with chiefly through laparotomies for pelvic troubles, such abdominal conditions giving rise to symptoms which simulated diseases of the uterus or its surroundings. Nineteen times

out of twenty, so-called retroversion cases were simply cases of salpingitis or ovaritis on one or both sides, and if it were possible to break up the adhesions without opening the abdomen it would expose the patient to an acute attack of peritonitis. Moreover, in such cases and in many others the omentum and the intestines were crowded into the pelvis, and there was associated displacement of the right kidney, once in a while of the left. These complicating facts were sufficient to account for the symptoms, without attributing them, as had been done, to the displacement of the uterus. He had often found on opening the abdomen that the omentum was from six to twelve inches longer than we had been taught it should be. Its blood vessels were greatly enlarged, the thickness of tissue increased to a degree simulating a tumor. Other conditions simulating disease of the uterus were hyperesthetic spots on the mucous membrane of the rectum, hemorrhoidal tumors, fissure of the anus, also semi-ulcerated states of the colon with fecal impaction or alternate diarrhea and constipation. In the conditions of the bowel and anus just mentioned, the passages were often composed of hard round balls, which caused much pain and led the patient to put off the act of defecation as long as possible. Where one or more of such conditions existed he thought it was evident the symptoms must be due to them rather than to simple displacement of the uterus, and that treatment must be more than mere replacement. If, after making the usual pelvic examination of a patient supposed to be suffering from disease of the generative organs, he did not find sufficient to account for the symptoms, he sent her to a special room, where she removed all of her clothing and went to bed, and then with the aid of a nurse he was able to determine the presence of movable kidney or other abnormal condition within the abdomen. It was not uncommon to find movable kidney in patients who had been treated solely for uterine trouble by other physicians. Indeed, movable kidney existed in twenty to thirty per cent of the women who entered his private hospital. It was so common that some of his assistants regarded it as the normal condition in some patients. There were also diseased conditions of the kidney, such as pyonephrosis, calculus, malignant change, etc., which might simulate disease of the uterus. To determine the position and size of the stomach and colon it was only necessary to fill them with air. In some patients the irritation, the pelvic congestion, pain in the left side on walking or standing, reflex disturbances of digestion and mental disturbance, produced by hard feces, were sometimes greater than the symptoms produced by displacement of the uterus. There was little doubt that chronic uterine disease brought about in the course of time hemorrhoidal and chronic rectal disease, and there was no doubt but that the existence of the latter might intensify the uterine disease, if not actually produce it. Movable kidney might or might not cause symp-

toms, and he would not operate for fixation until other possible causes of the patient's sufferings had been corrected. The author concluded with the statement that sooner or later all students of gynecology would have to make a thorough study of diseases of the rectum and kidneys, and should not overlook other abdominal organs.

DR. PAUL F. MUNDÉ quite agreed with the author as to abdominal conditions simulating disease of the uterus in the subjective symptoms produced. He was glad attention had been called to the fact that there was too much tendency on the part of general practitioners and gynecologists to forget that a woman had other organs than those contained within the pelvis. There was a great deal too strong a tendency to attribute every pain from which a woman suffered to her sexual organs. Dr. Wylie had referred to a number of conditions which might simulate disease of the sexual organs, and he was prepared to corroborate those facts and to refer to some other points. He had frequently seen proctitis cause bearing-down pains and a discharge from the rectum which was supposed to come from the vagina. He had seen cases of painful micturition, supposed to be due to prolapsus of the uterus, when in reality they were due to fissure or caruncle of the urethra. Pain about the back, attributed to uterine trouble, was sometimes due to inflammation of the coccyx. Rectal catarrh was so common in women that he looked for it, and expected to find it, when there was severe pain referred to the lower part of the back. Every year he saw many women who complained of pain extending across the abdomen below the umbilicus, in whom he could find absolutely no disease of the sexual organs, but who gave a history of constipation extending over years, alternated with diarrhea and the passage of hard scybalaë, sometimes mixed with mucus and blood.

He thought we were just now in danger of attributing too much to displacement of the kidney. He thought the ureter was oftener at fault than the kidney. Cases were cited in which the doctor had mistaken calculus of the ureter for disease of the Fallopian tube. Displacement of the liver had been mentioned in Berlin as simulating symptoms of uterine disease. He was surprised the author had not mentioned certain enlargements of the abdomen simulating tumors of the uterus or of its appendages. Accumulation of fecal matter in the colon, cyst of the liver, cyst of the meso-colon, chronic inflammatory condition about the vermiform appendix with exudate, tubercular peritonitis, etc., were conditions which might simulate tumors of the sexual organs. The diagnosis in some cases could not be made without an exploratory incision. Dr. Mundé said that in uterine displacements it was the adhesions and complications that played the principal rôle in the causation of symptoms, although correction of the displacement might be necessary to effect a cure.

DR. H. J. BOLDT thought that at the present time every gynecologist and general practitioner knew that there was something about female patients besides the uterus and its appendages. Of abnormal states of the abdominal organs causing symptoms simulating those of uterine disease, displacement of the kidney was most important. It was true the right kidney was most often displaced, yet he had seen several cases of movable left kidney. Unlike some writers, he had found the displaced kidney frequently quite painful on manipulation. One frequently found a sensitive state around the vermiform appendix, indicating a sensitive condition which might simulate disease of the uterine appendages. He did not now refer to acute cases of appendicitis. He had not infrequently found a painful condition of the abdominal muscles which was liable to mislead the examiner into the belief that the symptom was due to some disease more deeply situated in the pelvis. The abdominal muscles sometimes contracted into tumors closely resembling more deeply lying tumors. Attention should also be given the ureters, which could easily be palpated in thin and relaxed walls, and were often found much thickened and productive of symptoms.

DR. GEORGE M. EDEBOHLS said the ground had been so well covered that he would only lay stress upon one or two points. First, the thickened and congested omentum sometimes formed a tumor which might be mistaken for uterine fibroids. He had presented two or three such specimens. He had had two cases of displaced or wandering liver which closely resembled uterine disease. When displaced, the superior edge of the liver became the anterior, and the anterior the lower edge, so that in palpating from the front one palpated the superior surface of the liver. In one case he found the anterior edge in Douglas' pouch, the liver filling the entire right side of the abdomen. He believed in beginning our examinations with the abdominal organs and ending with the pelvis. Gynecologists should be in the first place good general practitioners.

DR. A. PALMER DUDLEY still believed there was something in uterine displacements as a cause of reflex troubles and pain manifested in other parts of the body. One of the most common causes of the reflex trouble was disturbance of the pelvic circulation brought about by the uterine displacement.

We had been told that about twenty per cent of gynecological cases presented displacement of the kidney, but the speaker thought one should be careful in making such a statement. He should take into consideration the difference in build of patients and the natural anatomical relations of the parts. The circulatory arrangement would account for difference in frequency of kidney disturbance on the two sides. Other points mentioned by Dr. Dudley as often misleading to a diagnosis of disease of the sexual organs were: adhesions of the peritoneum, etc.;

cancer of the pancreas or other abdominal viscera; displacement of the spleen; disease of the gall bladder; syphilitic or cancerous disease of the rectum; abnormal shortening of the utero-sacral ligaments, causing traction on the bladder and painful micturition; papilloma of the abdominal contents; abdominal hernia; angioma of the cellular tissue behind the uterus.

The President, DR. LOOMIS, said that about three years ago he requested the curators of Bellevue Hospital to make special examination with regard to movable or displaced kidney, and from among all the autopsies since made they had reported only four cases.

DR. WYLIE, in closing, said it had not been his object to prepare a complete paper on abdominal conditions resembling disease of the sexual organs; he had intentionally left tumors out of consideration. He believed that displacements of the uterus had little effect on the circulation unless there were adhesions. Antelexion was usually the result of imperfect development of the sexual organs, due to abnormal customs of our civilization. Sterility was common in such cases, but was much more likely to be incurable in those who postponed marriage than in those who married early.

A lengthened and thickened omentum was likely to diminish in size after the necessary operation upon the uterine appendages, etc., as he had found on reopening the abdomen in two or more cases. Unless infiltrated with pus, he would not, then, remove the thickened omentum if the operation could be completed without.

Stated Meeting, December 22d, 1892.

ROBERT A. MURRAY, M.D., *Chairman.*

DR. JULIUS ROSENBERG read a paper entitled

ACCIDENTAL HEMORRHAGE IN PREGNANCY.¹

DR. GEORGE M. EDEBOHLS said, with regard to exophthalmic goître as a possible etiological factor in uterine hemorrhage, that he had seen two cases of severe uterine hemorrhage (not, however, connected with pregnancy) in patients afflicted with exophthalmic goître. There was no apparent local cause.

DR. ELIZABETH CUSHIER had not had occasion to use the gauze tampon in this class of cases, but had found it valuable in others.

DR. A. F. CURRIER called attention to the fact that one might mistake hemorrhage from the circular artery for intra-uterine hemorrhage, and waste time trying to control it by the intra-uterine tamponade.

DR. EGBERT H. GRANDIN would emphasize the need of apply-

¹ See original article, p. 191.

ing radical measures in the presence of alarming obstetrical emergencies. In the presence of hemorrhage, not so much in accidental external as in accidental concealed, the practitioner must do something quickly or in the vast majority of cases lose the patient. It was usually accepted as a foregone conclusion that the child would be lost. If the hemorrhage occurred at term he would favor immediate emptying of the uterus by any means which was not more dangerous than the emergency which it was intended to meet. If the cervix were soft and dilated he would, as he had done so successfully in placenta previa, apply accouchement forcé. If there were not dilatation, he would give an anesthetic, dilate—preferably by the hand—turn, extract the fetus and placenta, and introduce the tampon. In a severe case he would not wait to try ergot hypodermatically, the hot douche, etc. In placenta previa, accouchement forcé had enabled him to save four mothers and four children, the entire number in which it was applied. In concealed hemorrhage, he would fear the patient might have lost too much blood for any measure to save life. A patient whom he saw with Dr. Coe did not lose an ounce of blood after they emptied the uterus, but then she had no blood to lose and died of acute anemia.

Dr. H. C. Coe mentioned the fact, as showing the rarity of this affection, that when it was discussed at a recent meeting of the American Gynecological Society not more than half a dozen members had seen a case of severe accidental hemorrhage. But as any one was liable to meet with the condition in his very next case, he should be prepared to meet it promptly. Irregular pains was a very important symptom. If a strong, healthy young woman had irregular pains the first six hours it meant something was wrong. Early irregular pains, with constant pain in the lower part of the abdomen, should at least awaken suspicion that something was wrong. He fully agreed with Dr. Grandin in the use of accouchement forcé. Formerly he had advised waiting, but now he thought the uterus should be emptied as soon as possible, unless there were too great shock, which made it necessary to first somewhat revive the patient by stimulants, etc.

The author made some closing remarks.

TRANSACTIONS OF THE FIFTH ANNUAL
MEETING OF THE SOUTHERN SURGICAL
AND GYNECOLOGICAL ASSOCIATION.

HELD IN LOUISVILLE, KENTUCKY, NOVEMBER 15TH, 16TH, AND
17TH, 1892.

November 15th—First Day—Morning Session.

The Association met in the Council Chamber of the City Hall, and was called to order at 9:30 A.M. by the President, DR. J. McFADDEN GASTON, of Atlanta, Ga.

An

ADDRESS OF WELCOME

was delivered by DR. L. S. McMURTRY, of Louisville, chairman of the Committee of Arrangements.

PRESIDENT GASTON responded on behalf of the Association.

DR. A. V. L. BROKAW, of St. Louis, Mo., read a paper entitled

EXPERIENCES IN PELVIC SURGERY.

He said of all the surgical problems difficult to solve, it may be truthfully said that those met with in the pelvis were the most trying. He knew of no surgical work which would compare with the experiences found in the pelvis; that such a diversity of conditions, complications, and unexpected happenings were ever presenting. In a series of many operations but few would be alike in every particular. Uncertainty of making an absolutely correct diagnosis before operations entered largely into the experience of all operators in this field. When the author had had only a little experience in this work, he could always make a diagnosis, and quite frequently verify it after operating. With an increasing experience, however, he found himself well satisfied with an approximate diagnosis.

The diagnosis of pus cases was usually clear, and one made a correct diagnosis in the majority of cases. It was in the other pelvic conditions where we made errors of diagnosis. Individually, he frankly admitted his inability to correctly diagnose the character of abdominal and pelvic troubles as his experience became larger. He had diagnosed pus tubes and found extra-uterine pregnancy; diagnosed extra-uterine pregnancy and found pus; diagnosed ovarian lesions and found the trouble located in the tubes, and *vice versa*.

The bad results in pelvic work were frequently found to be the result of neglect, often ignorance, and very frequently a want of resolution in the attendant. An early use of the knife in many cases which eventually passed into our hands would give far more brilliant results and improve generally the present statistics in pelvic surgery.

When well-defined pelvic lesions exist nothing short of radical measures succeed. Abortive attempts at dealing with pus or other threatening conditions only brought disastrous results. The author is a believer in the conservatism so well defined by Dr. McMurtry in a recent paper. That needless, reckless surgical exercises are perpetrated in the pelvic work of a few, he would not attempt to deny; however, the same was true in other directions, particularly so in the cerebro-spinal surgery which recently threatened to become epidemic. The specialist should recognize conditions demanding imperatively operative interference, and not nurse cases along until they became wrecks—wretched examples of what electricity, the sound, dilator, and cautery could do for women. The one condition above all others where exploratory incision should be resorted to was in cases of suspected extra-uterine pregnancy. It was correct and good surgery to open the abdomen and not wait for all the classical signs to appear. The symptoms of extra-uterine pregnancy were so frequently obscure and unreliable that the author was firmly convinced a radical position should be taken.

DR. WILLIAM WARREN POTTER, of Buffalo, desired to indorse that portion of the paper pertaining to early exploratory incision in cases of suspected extra-uterine pregnancy. As regards the use of the sound, he had brought an indictment against it some six or eight years ago, consequently he would not expatiate upon it at this time.

DR. JOSEPH TABER JOHNSON, of Washington, D. C., said that as soon as the surgeon diagnosed something in the abdominal cavity that ought not to be there, anatomically or physiologically, and was histologically wrong, it should be removed. An exploratory incision was justifiable in cases of suspected extra-uterine pregnancy, and the surgeon should base his further procedures upon what he finds after making an exploration.

DR. W. E. B. DAVIS, of Birmingham, Alabama, thought the pendulum relative to surgical interference had swung a little too far. He believed that a great many of the so-called "tinkers" who succeeded in relieving their patients did not accomplish it so much by the local treatment they employed as by having patients under their care, keeping the bowels open, giving constitutional treatment, seeing them regularly, etc. While by so doing a great many cases might not be cured, they were greatly benefited. Where pus existed in the pelvis there was no question in regard to surgical interference. In the matter of diagnosis, surgeons who were opening the abdo-

men constantly would rarely give a positive diagnosis in the case.

CRANIOTOMY UPON THE LIVING FETUS IS NOT JUSTIFIABLE.

DR. CORNELIUS KOLLOCK, of Cheraw, S. C., read a paper on this subject. The speaker said this operation implied the death of the fetus and a frightful mutilation of its body, often accompanied by serious lacerations of the vagina and adjacent tissues of the mother. Recent advances in obstetrics, gynecology, and abdominal surgery contributed largely to a demonstration of the fact that a timely resort to Cesarean section in pelvic obstruction is the great factor in success. In Germany, out of one hundred and forty-nine cases of contracted pelvis, one hundred and nine women and one hundred and thirty-six children were saved. He thought if craniotomy had been done in those cases one hundred and forty-nine children would have been destroyed and probably fifty women, perhaps more, making a sacrifice of at least one hundred and ninety-nine lives. In many of these cases exhaustion had supervened and septic influences had already been excited. This, added to a tardy disposition to union by first intention, caused by contusion of the parts involved in the uterine incision, lessened materially the woman's chances for recovery. Zweifel was successful in twenty-nine cases out of thirty. Schauta did Cesarean section fifteen times without a single death. Of eight cases in Ohio six were successful. Dr. Joseph Price had done Cesarean section a number of times successfully. Dr. Kollock was firmly convinced that eighty-five or ninety per cent of the cases of obstruction of the pelvis forbidding delivery of the fetus in the natural way might be saved by a timely resort to Cesarean section.

DR. W. D. HAGGARD, of Nashville, emphasized the position taken by Dr. Kollock.

DR. HUNTER MCGUIRE, of Richmond, Va., and DR. ARCHIBALD DIXON, of Henderson, Ky., favored Cesarean section.

DR. L. S. MCMURTRY, of Louisville, said that a few years ago it would have been impossible for one to have presented the views that Dr. Kollock had without meeting with violent opposition. Cesarean section was then regarded as an extremely heroic operation, and until recent years the mortality therefrom was very great; but since the operation had been carried to the present degree of perfection by Säger and others, it had strengthened the opinions of abdominal surgeons, who now considered it preferable to craniotomy.

DR. W. D. HAGGARD, of Nashville, followed with the report of

A CASE OF EXTENSIVE HEMATOCELE RESULTING FROM TUBAL PREGNANCY RUPTURING INTO THE BROAD LIGAMENT.

The patient, a house girl, was 24 years of age. She jumped

from an express wagon July 4th. Her menses were past due. Shortly afterward she was seized with pain in lower abdominal region, which grew worse during the night. Next morning a slight flow from the vagina was apparent, which she regarded as a return of her menses. For several days the discharge increased and the pain gradually grew worse. Vaginal examination revealed the left lateral pelvic space completely occupied by a non-fluctuating tumor so exquisitely tender as to preclude a thorough examination. The tumor in the hypogastric region was supposed to be an extension of the pelvic enlargement. The womb was closely hugging the symphysis, the external os patulous, discharging considerable blood, and on a level with the arch of the pubes.

Clinical History.—1. Patient confessed having had intra-pelvic trouble previously (presumably gonorrhea), for which she was treated locally. 2. At the time of the accident caused by jumping from a wagon, her menses were past due. As to how long, her statements were misleading. 3. There was a fitful yet persistent bloody flow from the uterus during her entire illness. 4. Paroxysmal, colicky pains in lower abdominal and pelvic regions, of frequent occurrence. 5. Existence of a tumor above the pubes, which she probably mistook for a gravid uterus. 6. Persistent refusal to submit to a digital examination, probably fearing the detection of her pregnant state.

Post-mortem Appearances.—(a) Enlarged and softened condition of the uterus, with a patulous os, showing escape of a sero-sanguineous, stringy fluid. (b) Enlargement of the left tube, with a well-defined cavity from which the fruit sac had escaped. (c) Existence of a deciduous membrane, as revealed by the microscope.

DR. S. M. HOGAN, of Union Springs, Alabama, reported a case of

FIBROID TUMOR OF THE UTERUS; PREGNANCY; RUPTURE ABOUT THE FOURTH MONTH; OPERATION; EXHIBITION OF SPECIMEN.

The woman, colored, was 28 years of age. Abdomen was very much enlarged and tender. On vaginal examination a fetus could be easily felt through what seemed to be an exceedingly thin membrane. The shoulder and head presented, but it was impossible to find the os. The feet could be felt as though just under the skin and to the left of the umbilicus. Bowels constipated and extremities cold. From the symptoms and history Dr. Hogan was satisfied that there was a rupture, and the probabilities were that it was about the fourth month of gestation. He was also of the opinion that the rupture did not destroy the fetus, that it continued to grow in the abnormal position in which it was found. He felt sure that if he had operated on the case immediately after rupture the patient's life would have

been saved. In all cases of rupture he would advise that Porro's operation be done immediately; that in all cases where the tumor is large or multiple, intramural or subperitoneal, with a saciform dilatation of the posterior segment of the uterus, and the os above the pubic bone or inaccessible, the same operation should be done. In all cases where the tumor is in front of the child or blocking the passage, a Porro operation should be done, provided pregnancy has advanced to full time; or where there is a hemorrhage or rupture of the membranes, indicating that an abortion or miscarriage is imminent.

First Day—Afternoon Session.

DR. L. S. McMURTRY, of Louisville, read a paper entitled

OVARIAN CYSTOMA WITH TWISTED PEDICLE AND PERITONITIS;
OVIARTOTOMY IN SECOND WEEK OF TYPHOID FEVER; RECOVERY.

DR. CHARLES A. L. REED, of Cincinnati, contributed a paper on

SURGERY OF THE URETERS, WITH A REPORT OF CASES.

He said that surgery of the ureters was one of the developmental subjects of abdominal surgery. These out-of-the-way conduits, exercising functions that are vital in character, were liable to diseased conditions which baffled the resources of the diagnostician and taxed the ingenuity of the operator. For purposes of diagnosis the physical means at our command might be briefly summarized as follows: 1. Exploration of the lower end of the ureters by digital examination (*a*) through the vagina, (*b*) the rectum, (*c*) the bladder. 2. Exploration of the lower end of the ureters by the sound passed through the urethra and bladder into the ureters. 3. Exploration of the central portion of the ureters by abdomino-lumbar palpation—an expedient of practical value only in cases of extreme ureteral distention occurring in very thin subjects. 4. Exploration of the upper end of the ureters by exploratory nephrotomy. Each of these several expedients might be amplified. The author said that since catheterization of the ureters had been popularized in this country, chiefly through Kelly, and since the technique of the procedure had become understood by those who have studied it, the diagnosis of disease within and surrounding these tubes was vastly more common. The digital exploration of that portion of the ureters lying within easy reach from the vagina or rectum was readily practised by those who had carefully studied the anatomy of the parts. Digital exploration through the urethra and bladder was an easy expedient, so far as the surgeon was concerned, and often led to the elucidation of important pathological facts, but the author was forced to believe that it was not without

danger to the patient. He had been forced into this belief by one case of incontinence lasting for nearly a year, and by two cases of weakened power of retention, one of which was now of quite two years' standing. Abdominal section for diagnosis of ureteral conditions, notably in cases of suspected calculus, was entirely justifiable. Dr. Reed then reported a case of peri-ureteritis; stricture; colpo-cysto-ureterotomy, with recovery. The second case was one of cicatricial stricture of an excised ureter; hydronephrosis; nephrectomy, with recovery. The third was one of pyonephrosis; nephrectomy, remaining ureteral disease.

DR. WILLIAM H. WATHEN, of Louisville, read a paper entitled

THE TREATMENT OF UMBILICAL AND VENTRAL HERNIA,

in which he confined his remarks principally to the preventive and curative treatment of ventral hernia following laparotomy. There were many cases of ventral hernia that could have been prevented had the proper treatment been carried out in the closure of the abdominal wound. In order that there may be no hernia following laparotomy, it was necessary to get perfect union by adhesion of all the layers of tissue forming the abdominal wall—the peritoneum, muscles, the deep and superficial fascia, and the skin. But especially must we get union of the layers of fascia, for unless this be done the other layers will gradually separate and hernia will follow. This cannot be done unless we succeed in bringing the cut edges of the fascia in even and perfect apposition long enough for strong union to occur. This is impossible if there was suppuration in the wound, and is generally impossible unless the several layers of tissue were separately united by the buried suture. In operations for large tumors, where the abdominal walls were relaxed so that there was no tension upon the wound, all the layers might be evenly and perfectly brought together, and good results might follow by uniting the wound with uninterrupted sutures carried through the entire thickness of the abdominal walls. But in four-fifths of the operations that were now done these conditions did not exist, and there was necessarily more or less tension immediately upon the wound. Hence we had no assurance that the several layers were brought into apposition, except it be done by separate union with the buried suture. Some operators claimed, the author said, that they have not had hernia following laparatomies, and that they have sutured the abdomen after almost any fashion that at the time suggested itself to them; but if these men would look more carefully into the subsequent history of their cases they would find that hernia is more frequent than they had supposed. The speaker did not believe, in his earlier laparotomy work, that hernia would follow his opera-

tions, and he was very bold in asserting that he had no hernia complications; but he now finds that he has, and in some of the cases where the immediate conditions were apparently the most favorable and permanent.

The next paper was read by DR. WILLIAM WARREN POTTER, of Buffalo, N. Y., entitled

SPECIALISM IN MEDICINE, PARTICULARLY AS RELATED TO SURGERY
AND GYNECOLOGY.

The time has passed when we may with propriety discuss the needfulness of specialism and specialists, because they have grown to be a necessity and it would not be possible to return to the old way. No one man can cover the whole professional field in teaching or practice, because it is already too large and is constantly widening. If specialists, then, are a necessity, the next question to be considered is the method of preparation for the practice of a specialty.

It is observed that specialists sometimes enter upon practice without adequate preliminary preparation for the work; and again they have gone out of the medical schools and immediately begun practice in special lines. Either of these roads to specialism is open to condemnation. Specialists should be properly trained by four years of school life, and then spend six or eight years more in private practice, post graduate study, and foreign travel. Hence it would appear that fourteen years is about the average time from entry upon the study of medicine to properly develop a specialist. If specialists are thus trained they will less frequently fail to recognize the fact that a local fault is oftentimes only an expression of a general dyscrasia, and that the general system frequently needs attention quite as much as the local manifestation of the malady.

The relations of specialists to general practitioners is an important subject for consideration. If there has sprung up an antagonism between them, the specialists themselves must put it down. It is well to recognize the fact that specialists need help from the general practitioner quite as often as the general practitioner needs help from them, and it will be better for all concerned, and especially for patients, when physicians act on this principle.

A specialist must abandon general practice when he enters upon his chosen field of ministration. The reciprocal relations between specialists is also a matter important to consider, and care must be taken that each department confines itself strictly to its own work and does not encroach upon the boundaries of territory properly belonging to others.

The ethics of specialism may be formulated very simply and do not require a decalogue of dogmas for its exposition. In 1840 Samuel Jackson, in addressing a class at the University of

Pennsylvania, said: "Every man of good sense, possessed of honorable sentiments and a moral feeling of right and wrong, by the instinct of honesty will know how to conduct himself without a code to regulate his deeds." This is about the sum and substance of all ethics and is adequate for the government of specialists.

The responsibilities of the specialist are now greater than at any other time in our history. The improved methods of teaching in the schools, the massive excellence of medical literature, increased clinical opportunities, and separate State medical examining and licensing boards, all contribute to improve the quality of physicians; and this must apply with as much force to the specialists as to others. Schools, however, should be restrained in their tendency to encourage specialism. Their whole energy should be addressed to the teaching and equipment of men for general practice. Specialists will evolve fast enough from the general practitioners so sent out, and this should be the only road to the practice of a specialty.

If general practitioners have become disturbed by the circumstance that tramps have sometimes taken possession of a portion of their territory, they must be consoled with the fact that there yet remains enough to cultivate and that specialists will be only too glad to assist in driving out these intruders. The argument, then, is:

1. There is essential need for specialists. Divisions of labor in every field are demanded, and nowhere more than in medicine.

2. Specialists being a necessity, they must equip themselves by years of study, and devote themselves to a still greater number of years of general practice, before they are justified in offering themselves as specialists.

3. They must conduct themselves in such a way as to merit the respect of the general practitioner and to invite his co-operation in their work.

4. The unwritten ethics of specialism demand that there shall be reciprocal relationship maintained, not only among specialists themselves, but also between specialists and general practitioners.

5. The opportunities for perfection in special lines of medical study are so great, and medical literature in both journalistic and text-book form is so rich, that an awful responsibility is entailed upon the specialist, which must be discharged with fidelity and honor.

6. The schools ought to discourage any and all students who give promise of entering upon the practice of a specialty as soon as the college doors are passed, and before the swaddling clothes of the professional tyro are slipped.

DR. R. M. CUNNINGHAM, Birmingham, Alabama, followed with a paper entitled

THE GENERAL PRACTITIONER AS A GYNECOLOGIST.

He said the general practitioner should not undertake work that can be better and more safely done by the specialist, provided one is obtainable. He should be willing to do and attempt the most radical and dangerous operation when necessary to save life, provided a specialist or one better prepared to do the work cannot be obtained. In cases not necessarily dangerous, or in which life does not become more or less a burden, but in which a cure can be effected only by a radical procedure, but which may be materially benefited or symptomatically relieved by milder methods, he should adopt the latter and not the former. In many cases the field is clearly his own, belongs to him, and he should be prepared and competent to treat them with safety and success.

The most important, certain, and effectual work of the gynecologist is his abdominal and pelvic work. In no department of the profession, perhaps, do the advantages of skilled work, nursing, and suitable environment play as important a rôle in obtaining results as in this class of work. Therefore experience and preparation are essential requirements in electing to do laparatomies. Hence the general practitioner, unless he be a laparatomist in embryo, with aspirations to become a specialist, and must have experience and therefore victims, should never elect to do this class of work. No courageous, honest man would allow a woman to bleed to death from a ruptured tubal pregnancy, a fatal peritonitis from a ruptured abscess, or a general septic peritonitis in puerperal cases, etc., without giving his patient a chance for her life by promptly opening the abdomen and meeting the clear indications there found. Nor would he allow a woman to die with an ovarian cystoma, or bleed to death from fibroids, when a specialist cannot be obtained, without removing the former and at least performing Battley's operation in the latter, provided he would not dare do hysterectomy. In a general way, laparotomy work should not be done by the general practitioner, except in cases of emergency and when a specialist cannot be obtained.

Cancer of the uterus is pre-eminently a case for the specialist, because complete removal of the organ is the most promising treatment for this class of cases. Secondary or plastic operations upon the perineum, vagina, and cervix, while not dangerous, require more than ordinary skill to obtain good results, and therefore belong to the specialist.

DR. HOWARD A. KELLY, of Baltimore, Md., read

A PRELIMINARY REPORT ON THE MORPHOLOGY OF OVARIAN
AND MYOMATOUS TUMORS.

He used the word morphology in a broad sense to include changes in contour caused by these tumors, as well as peculiar-

ities in the form and disposition of the tumors themselves. He briefly considered certain characteristic peculiarities produced in the (*a*) form of the abdomen; (*b*) peculiarities in the disposition or packing away of these tumors within the abdominal cavity; and (*c*) peculiarities of form assumed by these tumors in so far as they are affected by the constraining, constricting influences of their environment—in other words, the extent to which they are capable of being moulded by the pressure of neighboring structures.

The general tendency of tumors growing out of the pelvis and extending up into the lower part of the abdomen was to produce marked distention of the lower abdominal zone, at once evident to the eye, and readily recorded by measuring the distance from the umbilicus to the anterior superior spines and symphysis, which is increased beyond the normal, while the distance from the umbilicus to the sternum and ribs remains but slightly, if at all, changed. This generic difference the author demonstrated by comparing a group of tumors, arising from the upper part of the abdomen, with a pregnancy eight months advanced taken as a type of tumors arising from below.

The form of abdomen characteristic of large ovarian cysts was a globular or ovoid distention of a part or the whole of the abdominal wall, pushing out the infra-umbilical portion much more than the supra-umbilical, at least so long as the tumor occupies the lower half or two-thirds of the abdomen. This enlargement is uniform in parovarian cysts and polycystic tumors exhibiting but few bosses, due to the fact that the latter are composed of one or two large cysts associated with a mass of smaller ones, and the large cyst is best accommodated in the median line in the distended concave anterior abdominal wall, while the smaller ones at the side or back consequently do not show.

The alate or wing-shaped chest is due to a pushing out of the lower ribs and is a characteristic of any mass big enough to distend the entire abdominal cavity.

Prominent exceptions to the general rule just enunciated, that pelvic tumors distend most markedly the inferior abdominal zone, are the notable stretching of the upper abdomen in very fat women with large ovarian tumors, and the like distention in rachitic dwarfs in advanced pregnancy.

Nodular myomata, on the other hand, stand out in marked contrast to the smooth outlines of cystic tumors in giving to the lower abdomen a lumpy, bossed appearance, thus exhibiting through muscles and skin a softened exaggeration of their irregular outlines. This peculiarity still remains prominent, although softened, after these tumors have undergone fibro-cystic degeneration.

The flattened ovoid of an ascites, which is no tumor, shows well the striking difference between an enlargement contained in

its own sac wall and one free, and without definite form, in the abdominal cavity.

Small ovarian tumors up to the size of a goose egg commonly lie on the same side from which they originate.

Polycystic ovarian tumors, left to grow until they extend above the umbilicus, if not detained by adhesions, are most apt to lie markedly displaced to the right side. The explanation of this peculiarity is the same as the author had suggested for the right obliquity and torsion of the uterus in advanced pregnancy. The tumor is simply displaced over on to the right side of the stomach, for the repeated soft impacts of the constantly alternately enlarging and contracting stomach are far more potent than the tendency of gravity to keep it forward in the median line, or the tendency of the movements of the patient to dispose of it in some other position. For the same reason, in big ovarian tumors an enormous sac will sometimes be found directly under the concavity of the liver, snugly fitting convexity into concavity. This dextroposition of the tumor will not be apparent on the surface of the abdomen when a distended stomach compensates the inequality and gives the surface a uniformly rounded appearance.

The disposition of the intestines in the case of tumors rising from the pelvis is peculiar and worthy of note. They are at first crowded up away from the front and toward the back, and then out into the flanks. The omentum and transverse colon lie in front of or across the upper part of the tumor, which almost always thus remains infra-omental.

The disposition of myomatous tumors is interesting. Not infrequently one or more remain fixed in the pelvis, where they grow until they choke vital organs and threaten the life of the patient. Those peculiar myomata are often met, and tend especially to develop in women who have borne children when they have myomata, appearing as a more or less uniform enlargement of the whole uterine body, assuming the appearance and characteristic position of the pregnant uterus, bellying out the abdominal wall in the median line in front.

DR. WILLIAM H. MYERS, of Fort Wayne, Ind., read a paper entitled

THE TREATMENT OF TUBERCULAR PERITONITIS,

in which he said in 1821 Drs. Graves and Stokes, of Dublin, first directed attention to the use of opium in the treatment of peritonitis. Afterward, under the teachings of Dr. Clark, it assumed considerable permanence and predominated over all other treatment, and was regarded as curative. This period constituted the opium habit of the profession. At present we have a progressive invasion by the surgeon of this once purely medical region. Inertia in the profession is passing away. Professors

and authors are no longer followed by us with a punctuality equalled only by the old order of monks about penance and absolution. We are just now emerging from the doctrine of the living ancients that opium, alcohol, and liquid diet is the treatment for peritonitis, whatever its cause, and whether it be general, circumscribed, diffused, septicemic, or tubercular. If there be those present who indorse this treatment under all conditions, then he could only say, "God hath not justly dealt by them," for a correct diagnosis, with a correct apprehension of the etiology of each case, must suggest a different line of treatment from that mentioned. He asserted that it is only through a perfect diagnosis that we can see *when* and *how* therapeutical or surgical measures must be attempted. Upon this all correct treatment must depend. It is also of primary importance that the etiology be definitely settled at the earliest moment. When we have arrived at the conclusion that peritonitis is present, and have discovered the cause, the blow must be struck simultaneously with the onset. No delay can safely be tolerated, the only hope of rescue being the sudden arrest of the disease; for, in the language of Hutchinson, "it is almost impossible to exaggerate our conception of the wild-fire rapidity with which inflammation of the serous membranes may extend when once an adequate cause has been supplied." By the time that the normal outlines of the abdomen are obscured by tympanitic distention, respiration quickened and shallow, the pulse rapid and wiry, the supreme moment for precise diagnosis is past. Abdominal section for tubercular peritonitis was the most recent triumph of surgery. Dr. Myers had treated three cases of tubercular peritonitis by abdominal section, washing out the abdominal cavity, and drainage, with complete recovery.

DR. JOSEPH TABER JOHNSON, of Washington, D. C., read a paper entitled

OVARIOTOMY IN OLD WOMEN.

The author said it was not very long ago that patients over 60 years of age were considered too old to withstand the shock of ovariectomy, and in some instances within his own knowledge, and in one case by his advice, a large tumor was not removed simply on account of the patient's advanced age. With more rapid methods of operating, less handling of the viscera, and less time spent in sponging the abdominal cavity, these aged women have within the last few years been safely and successfully operated on. Shock has been prevented by rectal injections of nourishment and stimulants, subcutaneous injections of digitalis and whiskey, hot bottles to feet and along the sides of the body. In three cases, which formed the basis of his paper, he was quite sure that prolonged anesthesia and manipulation within the peritoneal cavity would have proved fatal.

The author said that improved methods, quicker operations,

antiseptic technique, and provisions against shock show thirty-eight recent cases between the ages of 67 and 82, with only two deaths, against twenty-four cases done twenty years ago, between the ages of 60 and 67, with a record of six deaths. These figures demonstrate, in addition to improved technique, the surprising fact that old age is no contra-indication against ovariectomy. Indeed, they seem to have endured the strain and shock equally as well as, if not better than, an equal number of younger women.

DR. BEDFORD BROWN, of Alexandria, Va., read a paper entitled

THE SIMPLE, SEPTIC, TRAUMATIC, AND SPECIFIC FORMS OF
CERVICITIS, AND THEIR TREATMENT.

Simple cervicitis arises alone from simple causes. It never originates from infection of any kind. It could exist for an indefinite period without infecting surrounding structures. For many years the author, in the treatment of this affection, had addressed his remedies to the interior of the cervical canal alone, whether he used nitrate of silver, sulphate of copper, carbolic acid, or iodine. *Septic cervicitis* arises always from septic infection, for the pelvic structures are connected by lymphatic communication. Contact with the os of portions of putrescent placenta, membranes, coagula, or septic discharges from diseased uteri were the common causes. Antiseptic measures alone could counteract septic infection and inflammation, whether in the form of septicemic fever or local inflammatory action. All other agencies were simply palliative or adjuvant in character. *Traumatic cervicitis* was simply inflammation and congestion of the cervix from wounds inflicted on that body either during labor, abortion, or from the use of dilating instruments. The author treats this form of cervicitis by means of a solution of nitrate of silver, varying in strength from a scruple to half a drachm, applied in the canal and over the entire cervix. He finds that most of his cases of open and all cases of concealed wounds heal by this method. *Specific cervicitis* may arise either from gonorrheal or syphilitic infection. In the early stages he resorts to douches containing peroxide of hydrogen in the proportion of one part to three-fourths of boiled water, and also permanganate of potash one grain to the ounce of water.

A MANIPULATIVE MISTAKE AND ITS CONSEQUENCES.

This paper was read by DR. GEORGE ROSS, of Richmond, Va. The author related the case of a woman who had suffered from unremitting, agonizing tenesmus, the result of a mass which she carried for seven years in her bladder, and which proved to be, on inspection, a pledget of absorbent cotton once saturated

with iodine, in shape a truncated cone, and thinly encrusted with phosphate of lime. The patient believed it was introduced by her first physician, who, when attempting to apply an intra-uterine dressing, mistook the urethra for the cervical canal.

The following officers were elected :

President—Dr. Bedford Brown, of Alexandria, Va.

First Vice-President—Dr. Joseph Price, of Philadelphia.

Second Vice-President—Dr. Geo. A. Baxter, of Chattanooga.

Secretary—Dr. W. E. B. Davis, of Birmingham, Ala.

Treasurer—Dr. Hardin P. Cochrane, of Birmingham, Ala.

Place of meeting—New Orleans, La. *Time*—second Tuesday in November, 1893. *Chairman of Committee of Arrangements*—Dr. Albert Miles.

ABSTRACTS.

1. ASCH: DERMATOL IN GYNECOLOGY (*Centralblatt für Gynäkologie*, January 9th, 1892).—A. does not look upon dermatol as a substitute for iodoform, as is done by many, but claims that it occupies a place *sui generis*; for although it may be used where iodoform, for want of something better, was employed heretofore, still it has an entirely different field of usefulness. Dermatol possesses only slight antiseptic properties; its action in this direction is more due to its drying properties—it keeps the wound aseptic by making it a poor soil for the propagation of germs. It also hastens the healing of the wound under a dry scab, and does not irritate in the slightest degree. Eczemas produced by sublimate, iodoform, and other antiseptic dressings are quickly cured by the employment of dermatol. Through its tendency to keep the dressings dry it permits of their retention longer than could otherwise be done, this also facilitating the healing process. It has the same drying power that is possessed by bismuth. The latter, however, has been found to be poisonous when used in large quantities; experiments of Heinz and Liebrecht have proven dermatol to be absolutely non-poisonous. Another advantage of the drug is that the powder and the dressings impregnated with it may be sterilized. Neither dry heat nor steam affects it. In this respect it has advantages over iodoform, besides being entirely free from odor. In cases of trachelorrhaphy, dusting the powder on the cervix and packing with dermatol gauze gives most satisfactory results. Its effects, however, are best demonstrated in cases of recent perineal rupture and in perineoplastie operations. It protects the wound and the sutures, preventing these being moistened and soiled. In lapara-

tomies, dusting the wound with the powder permits of longer retention of the sutures than would otherwise be permissible, for they are kept perfectly dry. He strongly recommends dermatol gauze for vaginal tamponing, and states that it quickly cures vaginal catarrh. The powder dusted on erosions also effects a rapid cure.

L. S. R.

2. HERFF, OTTO V.: THEORY OF ECLAMPSIA (*Centralblatt für Gynäkologie*, March 26th, 1892).—There seems to be a certain tendency for the cerebral centres to be readily irritated and excited in some patients, thus producing the eclamptic attacks. The most common and most important irritating cause is uremia causing intoxication. Other things, such as lead, alcohol, mercury, etc., may also cause an intoxication and thus act as irritants upon the cerebral centres. Intimately associated with this intoxication is infection, this also acting as a contributing cause. Other though rarer causes may be found in affections of the nervous or circulatory system—*e.g.*, genuine and cortical epilepsy, hysteria, psychical conditions, local affections of the brain and meninges.

H. believes that where, as in many cases, the affection of the kidneys is very slight, and the patients, particularly primiparæ, develop eclampsia, that these patients have what he terms an “*eclamptic liability*.” In these patients the gestation seems to be sufficient irritation in itself to bring on the attack. He therefore calls this variety “*eclampsia gestationis*,” and under this head includes cases of primiparæ, poorly developed and poorly nourished women, cases of twin pregnancy and hydramnion, in which this eclamptic liability is acted upon reflexly through the cerebral centres.

L. S. R.

3. ERÖSS: PATHOLOGY OF GENITAL HEMORRHAGE IN NEW-BORN GIRLS (*Arch. für Kinderheilkunde*, Bd. xiii., Hft. 3).—E. observed six cases of genital hemorrhage in new-born girls in a two years' service in the Budapest female clinic. In none of the cases was there a hemorrhage from any of the other organs, nor was there a hemorrhagic diathesis. In one case in which an autopsy was obtained a local affection was found. The mucous membrane of the uterus was injected, and in it two hemorrhagic spots could be seen. The peritoneum over the fundus was also injected, as was the mucous membrane of the portio vaginalis, this being also considerably swollen. The tubes were very tortuous; the ovaries were in the form of long, small flaps. In the right parovarium a small cyst was found filled with serum.

L. S. R.

4. LANDAU, THEODOR: THE TREATMENT OF CHRONIC PELVIC SUPPURATION; THE RESECTION OF THE UTERUS (*Centralblatt für Gynäkologie*, No. 35, 1892).—In isolated, circumscribed, and somewhat movable tumors the same treatment should be adopted

as in ordinary new growths, and the propriety of a celiotomy generally comes in question. If the inflammatory products are not in preformed cavities (Fallopian tubes), but exist as a diffuse infiltration, then the method of operation is according to their topographical situation. Tumors which point toward the abdominal wall or vagina must be opened at these places, and when they are unilocular their incision and drainage will generally effect a cure. There are a number of tumors, formed by inflammatory products, which are neither in contact with the abdominal walls nor in close proximity to the vagina, and which, on account of their contents, must be opened and drained. The situation of these tumors is generally one of the sides of the pelvis; their roof is formed by numerous agglutinated coils of intestines, and they are separated from the vagina by fibrous exudations and the thickened uterine. Theoretically it would seem best to remove the uterus, which bars the way, like the faucet in a cask, to the pent-up pus; but the dangers of wounding the ureters, rectum, and bladder are so great as to make the operation an impractical one. The same can be said of a celiotomy, which must disturb the peritoneum-protecting adhesions. The resection of the uterus is a far better and safer method. One or both sides of the uterus are resected sufficiently wide to admit the finger, which, assisted by scissors or forceps, gradually mines its way to the centre of pus. The author reports two successful cases.

J. R.

5. VON SICHERER: UTERUS BICORNIS BICOLLIS, PYOMETRA AND PYOCOLPOS LATERALIS DUE TO ATRESIA VAGINALIS DEXTRA (*Archiv für Gynäkologie*, vol. xlii., Hft. 2).—The case described concerns a girl 19 years old. She had jaundice, ascites, and scarlatina during childhood. First menstruated at 15, irregular, two to six weeks, discharge scanty. Suffered from abdominal pains during menstruation, which were most intense one day before the flow was established. The pains lessened but never subsided between the menses. The patient observed that if the flow was more profuse the pains correspondingly diminished in severity. She also noticed a small tumor about the right labium majus, which was tender upon pressure and gradually increased in size. The tumor was punctured in 1889 and discharged a considerable amount of dark fluid blood. This caused a decrease in the size of the tumor and amelioration of the symptoms lasting about three months, when the swelling again regained its former size. Six months later the tumor ruptured spontaneously and again discharged a quantity of blood of a similar character. For about one year the status remained unchanged, when she began to suffer from purulent vaginal discharge, at first only during the menstrual epoch, but gradually becoming continuous. Physical examination showed a well-developed anemic female, normal external genitals from which exudes an abundant dis-

charge of dark, offensively smelling pus. The vagina is narrow. The uterus, which consists of a large body and very small cervix, lies to the left and is not painful upon pressure. On the right side a tumor the size of a fist extends from the cervix down to the lower third of the vagina, whence it passes into a firm band which can be traced to the descending ramus of the pubes. This tumor appears to be continuous with the lower portion of the uterus. Based upon the physical examination and the previous history, the diagnosis of pyometra dextra was made, which the subsequent operation proved to be correct. The operation consisted of a free incision into the lower portion of the tumor, which was followed by an abundant discharge of offensive pus. The opened cavity was lined with vaginal mucous membrane; a small cervix could be felt in its upper part. Recovery without important complications. The after-treatment consisted of dilatation, irrigation, and tamponing of the cavity. The patient menstruated sixteen days post operationem. A speculum examination showed a discharge of menstrual blood from the left cervix, and blood mixed with pus from the right side. Bimanual examination demonstrated two uteri, separated from each other and of about the same size. Four weeks later she again menstruated without any discomfort. This case is especially interesting on account of the pyometra and pyocolpos. The literature records only one similar case (reported by Breisky¹). A spontaneous perforation of the septum between the two cervices, just above the os externum, explains the purulent discharge from the right uterus through the left cervix. This place is always a *locus minoris resistentiæ*, because during the process of development the ducts of Müller first begin to atrophy about this point. Embryology also explains the fact that in cases of double uterus and vagina in which a one-sided atresia is present, the right side is generally affected, as it has been found that the left duct of Müller is more rapid in its development than the right one. Atresia of both vaginae is rarely met with.

J. R.

6. ETIENNE, GEORGES: A STUDY OF THE INFLUENCE OF TREATMENT OF A SYPHILITIC MOTHER, ESPECIALLY DURING PREGNANCY, UPON THE HEALTH OF THE INFANT (*Annales de Gyn.*, April).—The author devotes time and care to the study of thirty-two cases of pregnancy in syphilitic women, and reaches the following conclusions:

1. The mortality of the fetus, in cases where the mother has never been under treatment, is enormous, reaching a per cent of 95.5.

If treatment be applied throughout pregnancy, we may hope to obtain almost complete immunity from this infant mortality.

¹ Archiv für Gynäkologie, Bd. ii.

2. Syphilis attacks the fetus especially during the fifth, sixth, and seventh months of intra-uterine existence.

3. Paternal syphilis is less injurious to the fetus than maternal syphilis.

4. The prognosis differs according to the stage of pregnancy when the mother becomes contaminated.

(a) If infection occurs during the first three months and is not subjected to treatment, the mortality during the first few days after delivery reaches one hundred per cent.

(b) The prognosis is a trifle better if infection occurs during the fourth and fifth months.

(c) In one case of contamination at the eighth month, the child lived and was apparently healthy; in a second similar case the child was in good condition at birth, but developed symptoms of syphilis later.

(d) Whenever suitable treatment was administered, the mortality was *nil*.

5. Etienne in no case met with any unfavorable results from internal medication during pregnancy.

A. R.

7. CAVILAN, A. P. : ATMOSPHERIC PRESSURE IN RETENTION OF THE PLACENTA (*Arch. de Toc. et de Gyn.*, March, 1892).—Uterine inertia, spasmodic contraction, adhesions, etc., etc., have all been mentioned as causes of retention of the placenta; atmospheric pressure is never spoken of, and yet it plays a most important part. Cavilan's remarks are based upon a study of over one hundred cases, the greater number of them having occurred in the practice of his father, whose attention was first called to the subject by the following event. He was called in consultation in the case of a multipara in whom the placenta was unexpelled four hours after labor, from uterine inertia. Friction and expression were of no avail, nor traction on the cord. He then endeavored to detach the margin of the placenta, which was firmly adherent, but without success. In order to get a better grasp upon the placenta, he perforated it in the centre, when, to his surprise, the whole placenta at once detached itself and was expelled without the aid of uterine contractions or of traction. The same result followed in many other cases. Where all the processes were normal, instantaneous expulsion of the placenta was obtained by its perforation.

Cavilan believes that cases of real placental adhesions exist, but that they are extremely rare.

The gaping of the genital tract after parturition favors the entrance of air into the uterine cavity, where it must exert some pressure upon the free or fetal surface of the placenta, causing it to adhere more closely to the uterine wall; this pressure counterbalancing that which is exerted by the air upon the maternal surface of the placenta.

In normal delivery, traction upon the cord causes the for-

mation of a vacuum. The cord, being inserted toward the centre of the placenta, naturally pulls upon and detaches that portion, and a cavity is formed upon the maternal side of the organ. This vacuum, joined to the atmospheric pressure exerted upon the fetal surface, tends to cause adhesion of the placental margins to the uterine walls, and resists not only uterine contractions and tractions upon the cord, but all efforts to detach the placenta, yielding only to perforation which causes an equilibrium of the pressure.

The atmospheric pressure upon the fetal surface of the placenta is not equal to that exerted upon the free surface of the body; it is, moreover, variable in its action, according as the genital tract is more or less gaping, allowing the greater or less entrance of air. Sometimes, indeed, it is so slight that it is readily overcome and normal expulsion occurs. Again it is sufficient in force to necessitate uterine expression, and at other times it is so great that it simulates adhesions and yields only to perforation.

Cavilan, in conclusion, believes that—

(a) Atmospheric pressure plays an important part in, and is often the sole cause of, retention of the placenta.

(b) The most widely known causes of retention have in the majority of cases only a secondary rôle.

(c) Atmospheric pressure may simulate adhesion of the placenta and give rise to intervention which is not devoid of danger.

(d) The action of this atmospheric pressure is variable.

(e) It causes a vacuum, which yields only to perforation of the placenta, which equalizes the pressures.

The method of procedure is as follows: An assistant or nurse draws gently upon the cord; the fundus is held firmly in place; the right hand is introduced into the uterine cavity and follows the cord to the centre of the placenta, which is then perforated by the middle and index fingers. The spongy tissue of the placenta is non-resistant, the uterine tissue is firm and in no danger of being ruptured. If strict asepsis is observed there is no danger in the operation, but every chance of success. A. R.

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ORIGINAL COMMUNICATIONS.

AN OPERATION FOR THE CURE OF VESICO-CERVICAL FISTULA
BY THE SECTIO ALTA, WITH RECOVERY.

BY
JACOB ROSENTHAL, M.D.,
Dresden.

(With two illustrations.)

It has been frequently demonstrated that in the treatment of vesical fistula good results can be obtained only where the entire operative field is open before one's eyes, so that each step of the operation can be easily seen and carried out. Of such cases it is needless to speak, but there are others, among which are the vesico-cervical, vesico-uterine, and certain vesico-vaginal, where the position with reference to the surrounding parts (due to adhesions or other causes) is such that they cannot be drawn to the field of vision. For the cure of these, up to a very recent date, the operations of colpokleisis, hysterocolpokleisis, etc., were performed—all operations supposed to indirectly cure the fistula by converting the bladder into an adjunct to the uterus, so that the menstrual blood mingled with and was voided with

the urine. Any new method capable of giving better results should certainly be placed in the category of standard treatment. Since Trendelenburg made his method public some time ago it has been my good fortune to see discharged from the Königl. Frauenklinik a patient who had had a similar operation performed successfully.

Trendelenburg describes his operation in three cases.¹ An extraperitoneal suprapubic cystotomy is done, and after the bladder is opened the edges of the fistula are freshened and sewed; the bladder is then sewed up, leaving a small space for drainage, the abdominal incision is but partly closed, and the prevesical space tamponed with iodoform gauze and drained. His first two cases were failures and colpocleisis was resorted to; his third case was cured.

Through the kindness of my chief, Prof. Leopold, I am enabled to report a case of vesico-cervical fistula operated upon through the bladder and cured.

Personal History.—A. S., 27 years old and married one year, was admitted to the hospital on June 15th, 1892. Her parents are healthy; she is one of eight children, two being dead. Had rachitis at 3 years of age, and has also been chlorotic. First menstruated at 16 years, now flows every three or four weeks for three days, and prior to the same complains of lumbar pains. On April 24th, 1892, she gave birth to her first child. The infant, as far as could be learned (the woman not being confined in our institute), was at full term and well developed. The woman, being a primipara, was in labor four days, though aside from this the labor was a perfectly normal one, for at the end of that time she was spontaneously delivered, the child being still-born. Subjectively, the first nine days after labor she was in good condition, with no fever; on the ninth, when she "got up," she noticed the involuntary passage of urine per vaginam. She mentioned casually that she sweated a good deal during the course of the lying-in and had some pain over the abdomen, more especially on the sides. She now complains that her urine cannot be retained at all when she reclines, and can only be held to a certain extent when in the sitting posture. There is also a muco-purulent discharge from the vagina. Bowels are regular, appetite and general appearance good.

On examination it is seen that the vagina contains a quan-

¹ Volkmann's Sammlung klinischer Vorträge, No. 355.

tity of urine, which appears to be coming from a slit-like opening between bladder and cervix, high up in the anterior vaginal wall on the right side. The urethra is normal. The urine, drawn by catheter, is cloudy, contains no albumin, and on standing deposits a sediment which under the microscope shows polygonal bladder epithelium.

On examination under narcosis, made June 17th, two days later, it is found that the anterior wall of the cervix on the right side has almost disappeared and instead presents at this place a funnel-shaped depression. All attempts to bring the cervix to the field of vision proved futile, as what was left of the anterior wall and the adjacent tissue was bound to the pelvic cavity by inflammatory adhesions. A curved sound was therefore introduced into the urethra, passed through the bladder and the cervix to the vagina, thus establishing the diagnosis of a vesico-cervical fistula. Moreover, it was decided at this time, because of the impossibility of operating per vaginam on account of the old and extensive adhesions, to perform a "section," which was done five days later.

Operation.—On June 22d the patient was etherized, and, after thoroughly cleaning the external genitals and vagina with a 1:4,000 sublimate solution, she was placed in the Trendelenburg position, and Prof. Leopold, with the assistance of Dr. Goldberg, made an incision parallel to the symphysis pubis, ten centimetres long, and another of equal length at right angles to the first along the linea alba. The recti muscles were dissected from the upper edge of the pubis, in order that the anterior wall of the bladder might be laid bare. Guided by a catheter passed into the bladder, that organ was opened superiorly on its anterior wall to the length of four centimetres, which incision was enlarged during the course of the operation. The incised lips of the bladder were stitched to the abdominal wall by means of two provisional silk sutures. The interior of the bladder could then be seen, and a small, soft stone, in size two by one by one-quarter centimetres, was removed. On further examining the interior it was found that the fistula was high up on the right side of the bladder, opposite the descending ramus of the pubis on the same side, and that it communicated at this point not only with the uterus, thus making a vesico-cervical fistula, but also, by means of an irregular fistulous tract from which pus was oozing, with the pubic joint (see Fig. 1). The

urethra was found to be normal and its orifice large enough to admit the finger. An effort made to freshen the edges of the fistula was found impracticable, as the tissues had become too dense and adherent to the pelvis, and there was but little chance that union would be obtained by stitching this old and hardened opening, and failure would necessitate a reopening of the abdomen for a secondary operation. Therefore, as the urethra and ureters were below the fistula, the following method was pursued, the fistula being excluded from the bladder by constructing a new bladder wall below it: The bladder was dissected away from the symphysis, and two flaps were made, the one from the original bladder incision, the other from the bladder

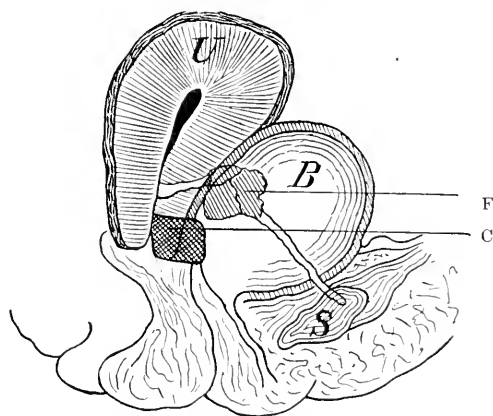


FIG. 1.—F, fistulous tract ; C, cicatricial remains of anterior cervical lip.

wall starting *beneath* the fistula (see Fig. 2). The bladder was now irrigated with a mild (one-per-cent) solution of borosalicylate, and then the edges of the two flaps coaptated by means of thirty-six fine silk sutures, some of which passed through the entire thickness of the flaps, while others avoided the mucous membrane. There was now left a newly constructed bladder of reduced size, with the fistula external to the same in a pocket above the newly made septum. The bladder was dissected away from the cervix on the right side, in order to close the opening there by means of several catgut sutures, prior to which iodoform gauze was pushed through the opening into the cervical canal for drainage per vaginam.

The fistulous tract leading to the symphysis was sounded, and it was found that the cartilage of the joint was for the most part

destroyed and that the bones in contact were carious. The joint and fistulous tract were thoroughly scraped with a Volkmann spoon, and what was left of the upper border of the pubic cartilage after this curettement cut through. After cleaning out the wound the symphyses were approximated and stitched together by means of silver and silk sutures.

The pocket left external to the newly constructed bladder was now closed by means of deep catgut sutures, iodoform gauze and a rubber drainage tube being placed in the depth of the

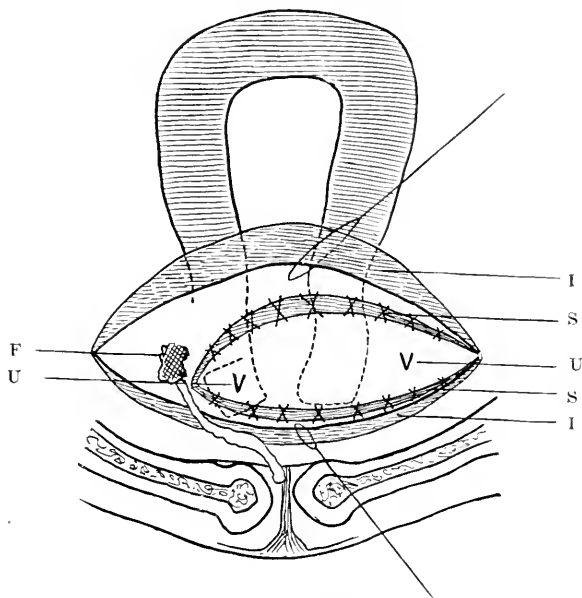


FIG. 2.—F, fistula; I I, primary incision of bladder; U U, ureters; S S, flaps, which when united formed new bladder.

pocket and extending out to the abdominal incision. A second rubber drain was placed in the opening of the symphyses. Both drains were sutured to the abdominal wall. The external abdominal wound was closed except a small opening left in the neighborhood of the symphyses, in which iodoform gauze was packed, and, with the usual dressings, the work was completed, a catheter being finally placed in the bladder and held there by a suture to one of the labia. The after-treatment was the usual aseptic one. There were but two days of high temperature—one the evening of the operation, when the curve showed 38.2° C. (100.7° F.); the other a week later, when, on account of some bowel

derangement, the temperature registered 39° C. (102.2° F.); otherwise the entire convalescence was perfectly normal. For pain, morphia in small doses was employed, and, owing to the turbid urine which appeared afterward, the bladder was washed out daily with distilled water. After three weeks the silver wire was removed. At the end of four weeks the patient was out of bed and the catheter was placed in the bladder at nights only. Owing to the caries of the pubic joint, patient was kept in the hospital much longer, being discharged September 6th, two and one-half months after the operation, at which time she was able to hold her urine two to three hours and pass from fifty to one hundred cubic centimetres.

As regards the caries and its effect on the size of the pelvis, no means were at hand to determine to what extent the basin had diminished in size, as the patient had not been confined in the Klinik; however, the measurements were taken on leaving the hospital, and are here appended: spinæ, 27.5 centimetres; cristæ, 28 centimetres; trochanters, 33 centimetres; external conjugate, 16.5 centimetres; and diagonal conjugate, 9.5 centimetres.

As to the results of her prolonged though natural labor—caries with its accompanying pus and the vesico-cervical fistula—it is not difficult to discover the cause, pressure of the presenting part for days (in this case four), resulting, as Schröder has so well established, in ulceration and death of the part. The case also confirms the opinion of Spiegelberg that fistulæ high up are generally due to spontaneous delivery.¹

Soon after Trendelenburg had published his cases, A. F. McGill² mentioned that the operation for vesico-vaginal fistula through a suprapubic wound in the bladder, first suggested by Trendelenburg, had been performed twice by himself. The first case was one of epithelioma involving the floor of the urethra along its whole length, part of the anterior vaginal wall, and the base of the bladder. The removal of the growth left so large an opening that a fistula resulted. In this case five weeks of efficient suprapubic drainage was followed by spontaneous and complete cure of the fistula. The second case was an ordinary one following labor, in which the operation proved satisfactory.

¹ In fifteen cases of uterine fistula upon which he operated, twelve resulted from that cause. Landau, *Archiv für Gynäkologie*, vol. vii.

² *British Medical Journal*, 1890, vol. ii.

He described the technique of the operation, and insisted on the importance of bringing the edges of the vesical mucosa well into apposition, and of suprapubic drainage which he considered the essential factor of the operation.

P. Baumm¹ also reports a case of vesico-cervical fistula in which the operation was made through the bladder, but without a cure. Baumm used Trendelenburg's position in this case. The fistula healed, though the bladder incision did not, owing, as he states, to the impossibility of keeping the urine from decomposing; besides which the larger portion of the sutures cut their way out, and thus, although the fistula was healed, the abdomen had to be left open for drainage. Afterward several attempts to close the same proved futile, and after several months the patient died of insanity, her original ailment.

In Trendelenburg's description of his operation great stress is laid upon the *sectio alta*. With the use of the Eschbaum apparatus the symphysis becomes the highest part of the body, the abdominal viscera sinking toward the diaphragm, and after the *sectio alta* the bladder becomes filled with air and the whole surroundings are thus brought to view. He makes the section by a transverse incision, ten centimetres in length, at the upper edge of the symphysis, separating the recti and opening the prevesical space; the bladder being then incised by a transverse incision, five to six centimetres long, in the anterior wall below the reflected peritoneum. The fistulous edges are then brought to view, freshened, and sewed with silk. In his first cases he knotted the sutures in the bladder; afterward he tied per vaginam on account of urinary sediment forming on the knots. The edges of the bladder incision are approximated by interrupted and Lembert sutures, a median opening being left through which a T-form drainage tube is passed. The abdominal wound is closed, space being left for drainage. Patient reclines on her side for five days and afterward on her back. The bladder is irrigated only if cystitis be present. The drain is removed in from nine to twelve days. Of his success and failures mention has already been made.

Nengebauer's statistics, he having done admirable work in collating the same, are worth repeating here, if for no other purpose than to compare the methods. Beginning with cases reported by Madame Lachapelle and ending with his own in 1888,

¹ Archiv für Gynäkologie, Bd. xxxix.

Neugebauer¹ was able to describe one hundred and ninety-three cases of vesico-uterine fistula with their methods of treatment, including the use of the cantery, nitrate of silver, colpokleisis, hysterocolpokleisis, etc., and spontaneous healing as mentioned by A. Martin² and others. He classifies the methods of operation as: 1. Closure of the cervix per vaginam (Jobert). 2. The immediate suturing of the fistula via the cervix, metrokleisis, hysterokleisis (Jobert). 3. By opening the anterior parametrium, dissecting the bladder from the cervix, and sewing the fistula from the wound (1886, Follet, Wölfler). He finally mentions also the method of Trendelenburg; the high position of the back he considers an essential feature, and concludes by saying that in those cases in which the fistula cannot be reached per vaginam an attempt at sectio alta should be made, leaving it for the future to decide as to the merits of this operation.

The prognosis as to ultimate cure in these cases becomes much better when such a method as this can be added to the armamentarium of the gynecologist.

In considering the relative merits of this operative procedure as compared with others, too great stress cannot be laid upon the position in which the patient is placed for operation. Manipulation becomes simple enough when the Trendelenburg position is used, for then the whole bladder and its surroundings are seen, especially if pressure be exerted from the vagina; besides which hemorrhage is slight and the operator is enabled to control every step.

Owing to the bad result he obtained, Baumm considers the suturing of the bladder, and more especially the kind of sutures used, as an essential point in the operation; he employed catgut. In the cases of Trendelenburg, as well as in our own case, silk was used, thirty-six fine silk sutures being employed for the sewing of the flaps alone, with no untoward results. Still the use of silk or catgut for these wounds depends on the fancy of the surgeon, as they both possess great merits. As to suturing the bladder, it may be stated that Bergmann mentions nineteen cases of sectio alta with suture of the bladder, where one-third healed

¹ Archiv für Gynäkologie, Bd. xxxix.

² It was my good fortune to see Martin, relying on this method of spontaneous healing, make a vesico-vaginal fistula for the cure of an old vesico-vagino-rectal fistula that could not be reached by operative procedure. The newly made fistula was kept open with gauze and the urine allowed to drain through; the old rectal opening healed spontaneously in a few weeks.

by first intention (Fifteenth Surgical Congress). Czerny and Hefnerich recommend the use of either suture (Eighteenth Surgical Congress), and Kehr had a case of *sectio alta* where he sutured the bladder in a man 69 years of age and a smooth healing ensued.¹

In considering the after-treatment one must agree with Baumm that care is required. In his own case, for the first few days after the operation the woman's position was constantly changed from side to side; while that was unnecessary in our own case, drainage and keeping the parts scrupulously clean is all-important. However, the greatest stress is to be laid on the presence of the catheter in the bladder. The bladder must be constantly drained, both night and day, for, as in our own case, four weeks after the operation, and only at the end of that time can the catheter be removed, and then for but twelve hours at a time. The reason for this is self-evident, any distention being dangerous to the newly made bladder—at first by causing the sutures to be torn asunder, and later on by the danger of preventing firm union, thus having the operation end in failure.

In recommending this operation one can justly state in conclusion that any method which permits the uterus to functionate without interference is the method that certainly ought to be adopted when possible.

SEVEN UNUSUAL CASES OF CONGENITAL MALFORMATION OF THE FEMALE GENITAL ORGANS.

BY

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(With seven illustrations.)

CONGENITAL malformations of the female sexual organs are by no means uncommon, and I have, in the twenty-five years of my medical career, seen a fair number of them, beginning with the famous *Catharine Holman*, who made her *début* as a woman early in the sixties, and claimed to be a true bilateral hermaph-

¹ Berliner medicinische Wochenschrift, 1890, No. 9.

rodite, with at least one ovary and one testicle, and who, after the so-called menopause, was transformed into *Carl* Hohman and took unto *himself* a wife.¹ The so-called hermaphrodites are, almost without exception, hypospadiac males, with a short, solid penis, at the root of which is the urethral opening; a cleft scrotum, each lateral half simulating a labium majus and usually containing a testicle; a short vagina; a masculine pelvis, limbs, and voice, and more or less hirsute development on the face and body. The diagnosis of the true nature of such cases is usually not difficult, although it must be remembered that there are any number of grades of this malformation, some of which may so closely resemble the female type as to render the decision uncertain without a microscopical examination of the genital glands found in the labia or inguinal canals, or even within the pelvic cavity. I saw such a case² some fifteen years ago, of a perfectly formed single woman of 46 years, who had never menstruated or had a molimen, had a perfectly formed female pelvis, a vagina of normal dimensions, no trace of uterus or ovaries, but in each labium an oval, tender body divided into a larger lower and smaller upper portion, precisely like the testicle and epididymis. The absence of the uterus would not have explained the non-appearance of menstrual molimina or flow, had ovaries been present somewhere about the genital area. Therefore, if the organs in the labia were ovaries, it is more than probable that menstrual signs would have manifested themselves at some time, with more or less regularity, for these bodies were as large as full-sized ovaries. But as no menstrual sign had ever appeared, and as the bodies resembled the testicle and not the ovary, I felt justified in pronouncing the case to be one of the very rare variety of a man with perfect feminine formation, solely excepting the uterus and ovaries. The only manner of settling the question was by a microscopical examination of the labial bodies, which I hoped to be able to secure, as the patient also had a double inguinal hernia which I proposed operating upon so as to get an opportunity to remove the supposed testicles at the same time. The patient, however, declined the operation and was lost to view.

¹ See Mundé, "A Case of Presumptive True Lateral Hermaphrodism," *THE AMERICAN JOURNAL OF OBSTETRICS*, February, 1876.

² See paper by Swasey, *THE AMERICAN JOURNAL OF OBSTETRICS*, vol. xiv., 1881; also article by Mundé, *Centralblatt für Gynäkologie*, 1887, No. 42.

Leopold reported a similar case some years ago in which the post-mortem showed the labial organs to be testicles. Therefore I think my diagnosis quite plausible.

The malformations of the female genital organs which do not simulate hermaphroditism are usually due to some variety or other of arrest of development of Müller's ducts, the two parallel tubes from which the Fallopian tubes, uterus, and vagina are formed, or of the ovaries. Such arrest of development may consist either in the failure of the Fallopian tubes to remain pervious or to assume their proper length and direction (occluded, twisted, abnormally long or short tubes); or in imperfect development of the ovaries (absence of Graafian follicles, cirrhosis, atrophy, double ovary); or in a persistence of the median septum of the united Müller's ducts for a greater or lesser extent of the genital tract (double uterus, uterus bicornis, double vagina, double hymen); or in an imperfect formation of the whole uterus, or of one part (uterus unicornis, solid uterus, conical cervix, antelexion of body and cervix, etc.); and, finally, in almost total absence of the uterus and ovaries (uterus bipartitus, rudimentary uterus). Complete absence of the uterus, without even a trace of a few transverse muscular fibres in the sickle-shaped band of peritoneum which stretches from side to side above the vaginal vault, is said never to occur. Practically, however, such a uterus as is represented by these few muscular fibres may be said to be no uterus at all. Usually when the uterus is thus rudimentary the ovaries are entirely absent, or represented only by small, bean-shaped nodules difficult to detect.

The most common types of these malformations are those in which the uterus and vagina show more or less their embryological origin from the two parallel Müller's ducts by the persistence of a portion of the median septum or by the divergence of the cornua of the fundus uteri (uterus septus, uterus bicornis, arcuatus, vagina septa, hymen duplex). A complete division of the uterus and vagina, forming two entirely separate canals from vulva to fundus uteri (uterus didelphys—twin uterus—and vagina septa), is much more rare. Not infrequently one of these double uteri or vaginae is closed, and when the girl reaches the age of puberty menstrual blood begins to accumulate until the distention of the cavity gives rise to pain and a tumor develops above the pubes or at the vulva, as the case may be. The diagnosis may be obscure, since the regular menstrual discharge appears

from the other open half of the genital tract. This condition is known as *hematometra* or *hematocolpos lateralis*. A closure of both halves of a double uterus or vagina is very rare, for some unknown reason. Why these arrests of development occur is a mystery which may never be solved.

In some cases one half of the double uterus becomes impregnated and develops accordingly, coition taking place through that respective vagina only, and the delivery of the child may occur without the presence of the other vagina and uterus being suspected (as in Case VII.); or one half of the double uterus undergoes normal development, the other half remaining infantile, and, though impregnation does not occur, no suspicion of the true condition is ever entertained.

Or, finally, the rudimentary half of the double uterus may

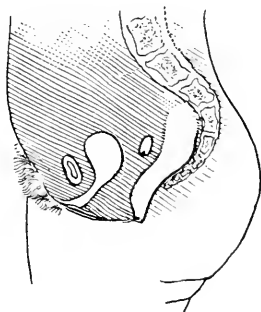


FIG. 1.—Imperforate vagina ; rudimentary uterus ; absence of ovaries.

become impregnated, develop to a certain period (three to four months), and then rupture, the patient dying from internal hemorrhage. A few cases are on record in which a woman with a double vagina and double uterus contracted a gonorrhea in one vagina, the other canal being healthy; the disease was conveyed to one man, while another man who had connection with the same woman escaped. The explanation, of course, was that the first man happened to enter the infected passage, while the other, by a more fortunate chance, selected the healthy vagina.

While I have seen probably nearly every variety of malformation of the female sexual organs which is recorded, I remember several of rather unusual interest which I happen to have met with during the past few years. I will briefly describe them.

CASE I. Imperforate Vagina; Rudimentary Uterus; Absence of Ovaries.—A well-formed, buxom Irish girl, 21 years of age,

with well-developed breasts and external genital organs, presented herself in my clinic at the Polyclinic because she had never menstruated. An examination showed a perfect vulva, but no vaginal opening whatever. Per rectum and with a sound in the bladder nothing could be felt except a small body, of the size of a peanut, about three inches from the vulva. This was supposed to be a rudimentary uterus, and, in view of the normal condition of the external genital organs and the breasts, it was thought advisable to make a vagina for her, and see whether uterus and ovaries might not possibly be susceptible of stimulation to a more natural growth. I therefore admitted her to my service at Mount Sinai Hospital, and under anesthesia separated the bladder from the rectum until my finger reached the rudimentary uterus. This was opened, and a discharge of thick mucus escaped. The small uterus was about one inch long. The edges

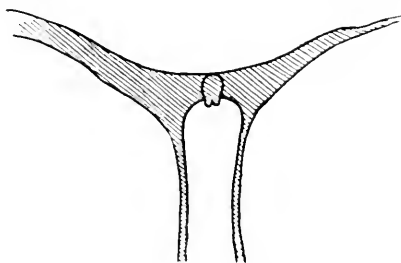


FIG. 2.—Normal external genital organs and vagina; rudimentary uterus; absence of ovaries.

of the external os were stitched with catgut to the margin of the newly formed vagina, and the whole cavity packed with iodoform gauze. No perceptible ovaries could be detected. Later on, after removal of the gauze, a glass dilator was inserted into the vagina and kept there until cicatrization had taken place. A serviceable vagina was thus formed, but whether it has remained so I cannot say, as the girl did not again present herself after dismissal from the hospital (Fig. 1).

CASE II. *Perfect Female Habitus; Normal External Genital Organs and Vagina; Rudimentary Uterus; Absence of Ovaries.*—A perfectly formed, pretty girl of 18 years was brought me by her mother in June, 1890, because she had not menstruated or shown any signs of puberty. Although it would not be justifiable to examine every young girl of 18 who has not menstruated, I remembered the history of two sisters (*sic!*) in a

neighboring city who failed to menstruate up to the twentieth and twenty-second year respectively, in spite of the most persistent medical and hygienic treatment, and who, when finally an examination was made, were found to be hypospadiac males! Hence I requested an examination, which was readily granted, and found the following condition: External genitals normal; mons veneris well covered with hair; vagina of normal dimensions; cervix absent, external os merely a dimple; uterus size of peanut, apparently solid; no ovaries or tubes to be felt. Breasts flat (Fig. 2).

Of course in neither of these two last cases was any treatment advised.

CASE III. *Perfect Vagina; Absence of Uterus and Ovaries; Normal Female Habitus*.—A girl, 20 years of age, apparently perfectly developed in every way and attractive in appearance,

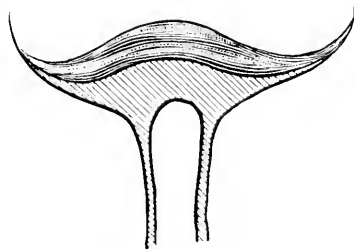


FIG. 3.—Perfect vagina; absence of uterus and ovaries.

was brought to my office in February, 1891, because she had never menstruated. On examination I found the pelvis of normal width, the mammary glands practically undeveloped, the hair on the mons veneris in moderate quantity; external genitals normal; the vagina three inches deep, measured by the sound, as the hymeneal orifice was so small as to prevent introduction of the finger. On digital examination by the rectum, with the sound in the bladder, there was found to be an absolute absence of the uterus and ovaries. The only trace of the uterus was a crescentic band extending from side to side (Fig. 3).

CASE IV. *Double Uterus and Vagina; Congenital Closure of Right Half; Hematometra and Hematocolpos dextra lateralis; Operation; Cure*.—A well-formed girl, 23 years of age, was admitted to my service at Mount Sinai Hospital with a history of abdominal pain persisting at intervals for several years. She had first menstruated in her seventeenth year, the

flow being of the usual amount. External genital organs normal. On separating the labia a bluish tumor appeared which pushed the intact hymen to the left side. The finger readily entered the vagina to the left, and at a depth of over four inches detected with difficulty a small cervix, through which a sound could be introduced to a depth of over three inches. The vagina was almost closed by the tumor on the right side, which was tense, elastic, and extended above the pubes, where it attained the size of a clenched fist. An indistinct fluctuation wave could be transmitted, on bimanual palpation, from the suprapubic tumor to the vulvo-vaginal swelling. I inserted an aspirator needle into the apex of the mass at the vulva, and withdrew dark, thick blood. I at once made the diagnosis of retention of menstrual

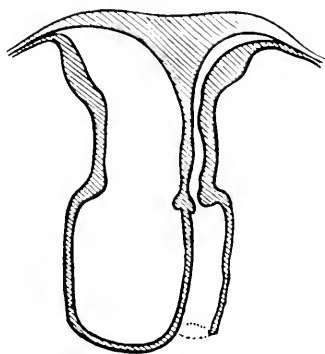


FIG. 4.—Double uterus and vagina ; hematocolpos and hematometra lateralis.

blood in the closed half of a double vagina and uterus, and verified the diagnosis a few days later when I excised the whole septum from vulva to fundus. The septum was very thick and highly vascular, and numerous catgut sutures were required to stop the bleeding and unite the edges of the wound on the anterior and posterior walls. The whole cavity was packed with iodoform gauze, and the patient did perfectly well until the night of the fifth day, on which the gauze was removed, when a violent hemorrhage took place from the wound in the anterior wall, which was only stopped by a deep suture passed by the house surgeon under the bleeding spot. Further progress was uneventful, and the girl left the hospital with a normal, if rather capacious, single vagina and a well-contracted uterus (Fig. 4).

CASE V. *Double Uterus and Vagina (Uterus didelphys—Twin Uterus); Normal Ovaries; Dysmenorrhea; Removal*

of Septum; Cure.—A young, unmarried lady, 23 years of age, came to me recently from a Western city for most intense dysmenorrhea, from which she had suffered for twelve years, when she first began to menstruate. She was always obliged to remain in bed under the influence of morphine during the first three days of each period, and had experienced no relief from any of the remedies which had been given her, except the morphine. She was several months in the private sanitarium of a distinguished gynecologist of her city, who, under anesthesia, dilated her uterus repeatedly and applied local faradism without benefit. Indeed, she grew worse, and intermenstrual pain was added to that at the menstrual period. The removal of the ovaries was then advised, but not agreed to. The family physician then saw

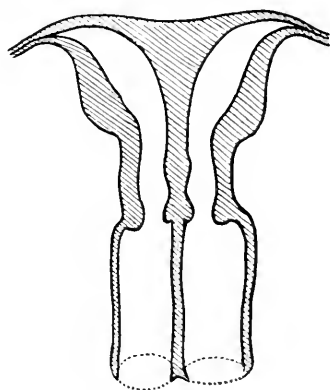


FIG. 5.—Uterus didelphys; vagina septa; dysmenorrhea.

the girl, and on examination accidentally discovered that there “were two vaginæ, two cervixes, two distinct chambers in the uterus, one seeming rudimentary, the other admitting the sound to two and three-quarter inches,” as his letter to me states. This condition had apparently escaped the notice of the gynecologist, who examined and operated only through one opening and never suspected the other. The family physician believed that the girl menstruated only from one side, and that “the pain was caused by an undeveloped and thickened endometrium together with a very small opening.” He therefore applied electric dilators to the less developed side (negative pole) and dilated as large as a No. 10 American, and then treated the endometrium twice a week with applications of the negative pole, giving about twelve sittings. The intermenstrual pain for a time disappeared,

but then returned as before. The patient decided to place herself under my care, and came to my office during the month of October last.

I found an exceedingly well-developed girl, with, as it seemed to me, rather unusually broad hips; external genital organs apparently perfectly normal, but on separating the labia (warned, as I was, by the letter of the family physician) both eye and finger readily revealed to me two hymeneal openings, the right easily admitting two fingers, the left with some difficulty the index finger only. The right vagina was capacious, the cervix of normal shape and nearly normal size, uterine two and a half inches deep; the left vagina was somewhat less roomy, and the cervix decidedly smaller, uterine cavity nearly the same depth as the right. The left side was undoubtedly the one believed by her physician to be the less developed. The ovaries were readily palpable and seemed to be healthy. Nothing else abnormal about the pelvic organs.

In order to be able to judge of the character and severity of the menstrual pain from personal observation, I admitted the young lady to my private hospital, the menstrual period being just due, and found her statements as to location, character, and severity of the pain quite correct. I became convinced, however, that the neurotic element played somewhat of a part in the symptoms. While she was menstruating I examined both vaginæ with the Sims speculum, and saw blood oozing from both external orifices, thus settling the question of suspected obstruction to, or absence of, menstrual flow from the left half. The amount of blood lost was not unusual.

The patient insisted on having her ovaries removed, as she knew that she would never be able to marry (her physician had told her of her malformation), and might as well be rid of her pains for good and all. I therefore examined her again under chloroform, but could not satisfy myself that there was anything wrong with the ovaries. Hence I positively refused to remove them, and told the young lady that I could make her just like any other woman by a safe operation—namely, the removal of the vaginal and uterine septa, and dilatation of the uterine. I took care to impress her forcibly with the idea that this operation would be a perfect cure, so as to have the assistance of her moral sense.

I accordingly excised the whole vaginal septum from vulva to

cervix, using numerous catgut sutures to control the profuse bleeding and unite the edges of the wound on the anterior and the posterior vaginal walls. With a straight blunt bistoury I then divided the uterine septum up to the fundus, dilated the now single uterine canal thoroughly with Palmer's dilator, and packed it and the vagina with iodoform gauze. In about a week the wound had healed and both the vaginal and uterine canals had assumed the normal condition. Menstruation came on at the regular time, and, with the exception of a slight ovarian pain, was practically painless. The patient said that she could not remember ever having passed so comfortable a period. A letter from her mother a month after her return home reported her as perfectly well.

I do not pretend to explain the cure of the dysmenorrhea by the removal of the utero-vaginal septum, because I do not see how the malformation could produce menstrual pain. But I think that probably the free dilatation of the uterus, together with the moral influence of the operation, produced the successful result (Fig. 5).

CASE VI. *Double Uterus, Pregnancy in One Half mistaken for Extra-uterine; Laparotomy; Error in Diagnosis discovered; Abortion; Recovery.*—On April 14th, 1889, a married woman, 25 years of age, mother of one child, was admitted to Mount Sinai Hospital with the diagnosis of extra-uterine pregnancy. She had last menstruated two and a half months before, and presented the usual distant signs of pregnancy, but an abdomino-vaginal examination at once revealed the reason for the diagnosis with which she was admitted. The cervix was large and lacerated toward the left; to the right of the uterus extended an elliptical, elastic mass, larger than the fist, which appeared to be connected with the right uterine wall and still not a part of it. More or less rhythmical contractions could be excited in this mass, and the patient complained of frequent severe pain in it. Feeling quite sure of the diagnosis, I passed a sound into the uterus, and it readily entered to a depth of three inches, slightly to the left side. The diagnosis thus appeared settled without a doubt, and speedy laparotomy was decided upon to forestall a probable rupture. On opening the abdomen on the next day (Sunday) and inserting two fingers, to my surprise I found the ovaries and tubes normal, the uterus enlarged and of slightly uneven contour. It was therefore evident that it was

not a tubal pregnancy. My next idea was that it was an interstitial pregnancy of the right horn, a condition quite as dangerous and requiring removal of the ovum as much as a tubal gestation. In order to reduce the size of the uterus so as to be able to bring it out of as small an abdominal incision as possible, I aspirated the amniotic fluid through the fundus uteri. In order to ascertain the exact relation of the uterine cavity to the ovisac, I requested Dr. Wells to introduce the sound. To my surprise it entered to the depth of five and a half inches, the tip being plainly visible through the uterine wall at the fundus in the right side. The truth now began to dawn on me, and I requested the doctor to withdraw and reintroduce the sound to the

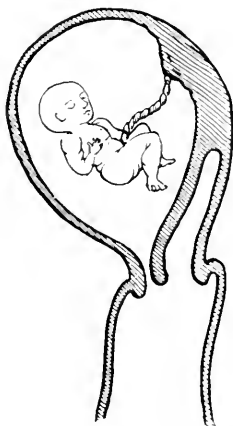


FIG. 6.—Double uterus ; pregnancy in right half mistaken for extra-uterine : laparotomy.

left. It entered only to the depth of three inches, as the day before. Dr. Wells now also said that he could plainly feel the septum between the two uterine cavities. I at once closed the bleeding wound of the aspirator needle with fine catgut, returned the uterus to the pelvic cavity, and closed the abdominal wound. The patient aborted twelve hours later and made an uneventful recovery. Subsequent examination with two sounds confirmed the diagnosis of double uterus. The woman had, of course, conceived in, and been delivered from, the left half at her first confinement (Fig. 6).

It would be well to consider the possibility of making this mistake in doubtful cases of extra-uterine pregnancy, particularly in those where the fetus is claimed to have been expelled

through a dilated utero-tubal opening into the uterine cavity and delivered as in ordinary abortion.

CASE VII. *Double Uterus and Double Vagina; Right Half Parous and containing Fibroid, Left Half Rudimentary.*—A married lady, 26 years of age, mother of two children, and who had had two miscarriages, consulted me in December, 1892, for pain in the right ovarian region. On digital examination I discovered a peculiar fleshy fold which divided the upper two-thirds of the vagina into two halves, but did not extend quite down to the vulva. The left half was small, the right capacious. On the left side a small, rudimentary cervix could with difficulty

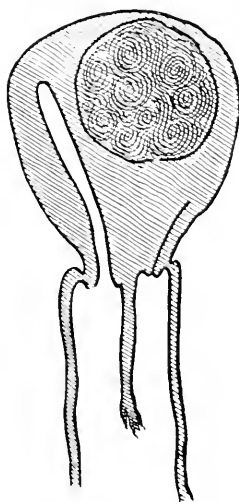


FIG. 7.—Double uterus and double vagina; right half parous and containing fibroid; left half rudimentary.

be detected, and the sound could be made to enter only to the depth of one and a half inches. On the right side, however, the sound was readily passed to the depth of three and a half inches through a lacerated cervix. The right side of the uterus was also enlarged to the size of two fists by a subperitoneal fibroid which occupied the central and anterior portion of the organ.

The vaginal septum had probably originally extended down to the vulva, but its lower attachment had been torn away during delivery, together with a portion of the perineum. The right vagina and uterus had evidently been used exclusively for parturition, and probably for coition also (Fig. 7).

THE ESSENTIAL QUESTION OF DRAINAGE IN PELVIC SURGERY.¹

BY

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DRAINAGE has long occupied in surgery the position of an efficient and established procedure. It was known in the days of Hippocrates and Galen, and practised by surgeons in the last century. In 1859 Chassaignac published a systematic work on drainage and introduced into practice the rubber tube. Koeberlé, of Strassburg, devised the glass tube used in modern pelvic surgery. I had the privilege, a few years since, to see in that eminent surgeon's study some of the first tubes used by him. Keith modified the glass tube of Koeberlé into the straight open-end tube now in use. Capillary drainage by gauze was introduced by Mikulicz, and has been applied in various modifications.

The advantages and safety of drainage in pelvic surgery have been so frequently discussed and so thoroughly demonstrated in practice that it would seem superfluous to recite anew the value and importance of the procedure, or to urge its general adoption by those doing this large and critical class of operations. Yet there seem to be such diversity of opinion as to its efficiency among prominent surgeons whose teachings are of widespread influence, and such differences as to its range of application, together with such chimerical views as to its dangers, that the question demands consideration. Indeed, it seems to have become fashionable of late to speak of drainage apologetically, and in more than one instance surgeons have publicly declared that to resort to drainage after pelvic operations is a confession of imperfect operative work or faulty technique. As an illustration of the views of certain operators, I make the following quotation from the published remarks of a prominent teacher and practitioner of gynecology of the city of New York: "In my own

¹ Read at the meeting of the American Association of Obstetricians and Gynecologists, in St. Louis, September 20th, 21st, and 22d, 1892.

laparatomies, numbering nearly two hundred, I have used the glass drainage tube in only two, and both patients died. On the other hand, in as many as seventy-five consecutive laparatomies without the use of the drainage tube, not one patient died. I use iodoform gauze, but do not allow it to come up through the incision. I carry the end through the vaginal vault behind the uterus," etc. In another instance a prominent Eastern surgeon, while discussing this subject in one of our national societies, opposed the use of drainage, declaring that the glass tube might be a source of danger by punching holes in the intestine. Another surgeon, connected with the gynecological department of a large Eastern hospital, writing upon this subject recently, says: "Now that the conditions underlying the infection of wounds are so much better understood, and it is becoming recognized that the drainage tube too often permits the entrance of pathogenic bacteria, we can understand why its general use in abdominal surgery has been abandoned by many operators."

These public utterances would scarcely elicit serious consideration from those accustomed to the use of drainage in pelvic surgery, but going out to the profession are liable to disparage a most efficient and, in my belief, essential feature of successful operative work. The importance of drainage in pelvic surgery, its necessity for dealing successfully with large classes of cases, its simplicity and safety, are no longer experimental considerations, but are facts based upon sound pathological principles and demonstrated beyond question by the stern logic of results in the hands of the most successful operators. It is important that we give the question fair and just consideration, both as to the principles upon which drainage is based, the practical application of the same, the advantages to be derived from its use, and the dangers, if such there be, from such practice.

Opposition to drainage in abdominal surgery is undoubtedly due to fear of the tube as a source for introducing septic infection. It is regarded by many surgeons as an open danger far greater than the danger from within. Until it is realized that these dangers are due altogether to improper use of the tube, it is useless to attempt to decide the question by reference to the work of various operators. The necessity for drainage may depend upon the skill of the operator, since rapidity and thoroughness in operating may enable some surgeons to dispense with drainage where others would find it a necessity. By limiting

exposure of the peritoneum, by careful enucleation of morbid growths and disintegrated tissues, by constant vigilance in securing bleeding points and cleansing from effused fluids, one operator may succeed in certain cases where others would fail. Such are the operators, like Martin and Olshausen, so frequently mentioned by the opponents of drainage. Another class of operators, like Bantock, Tait, and Price, use the tube constantly without any fear whatever of danger from it. A third class of operators dread the tube and dread the absorption of retained fluids, and endeavor to drain some other way or take the chances of absorption and indirect drainage by purgation. The last occupy a position both unscientific and unsatisfactory. A patient consideration of the situation will, I believe, drive any thoughtful person to one conclusion, which it is the object of this paper to demonstrate. If one class of surgeons can use drainage in a long series of miscellaneous operations, under all manner of circumstances, and with a mortality no greater than obtains with those who discard drainage, then surely the drainage tube cannot be a source of danger. Moreover, if some surgeons who use the tube occasionally have a greater mortality with it than without it, then it is fair to infer that this class of surgeons do not use it properly. Hence all attempts to decide the merits of drainage by reference to the practice of this or that operator should be abandoned, and attention directed to the subject under consideration, considering alone whether drainage is essential, and the best method of draining, if essential, with efficiency and safety. That drainage after peritoneal operations is essential in a large proportion of cases; that it is an advantage in many cases wherein it is not absolutely essential; that, when properly applied, it is without danger and does not complicate in any respect the subsequent progress to convalescence, can be established both by scientific facts and practical results.

The principles underlying the use of the drainage tube in the treatment of wounds are logical and practical. By the removal of serum and blood, tension is relieved and material prone to septic changes removed. Abscesses, superficial and deep, are cured by rupture and discharge of their contents. Incision, evacuation, and drainage are but imitations of Nature's own method of cure and prevention of general septic toxemia. In no region of the body are these universally recognized principles of surgical practice more effectively demonstrated than in

the peritoneum. This membrane, so rich in the function of absorption, is revengeful as well as tolerant. By removal of fluids and débris after the operation the membrane is relieved of material prone to decomposition. These septic changes, if such condition is not pre-existing, are, as a rule, caused by material introduced from without, but may also be produced by infection through the injured and distended coats of the intestines. The healthy peritoneum absorbs with great rapidity, and this function is materially increased by the modern method of using saline purgatives after operation. But it is exceptional that operations are performed upon a healthy peritoneum, and effused fluids may not be absorbed before decomposition occurs. Moreover, complete removal of every particle of morbid growths and diseased tissues in the course of operations is not possible.

In operations where there is existing peritonitis or ascites, drainage is indicated. In this class of cases drainage is *per se* essential to restoration of a healthy condition of the membrane. This is especially true of cases of tubercular peritonitis. In cases of suppurative peritonitis two or more tubes should be introduced, so that an extensive area may be drained, and the membrane flushed if repeated irrigation be indicated.

In operations where septic matter has escaped into the peritoneum, especially pus, and where portions of tumors and masses of lymph are necessarily left, in these cases irrigation will be required, and purulent fluids attenuated by dilution can be removed by the drainage tube.

In cases where the coats of the intestine are stripped or the bladder imperceptibly injured, the drainage tube is essential to successful results. In my own experience I have saved patients developing through the drainage tract fecal and urinary fistulae who would inevitably have died but for such drainage.

When large quantities of blood have been effused into the peritoneum, as in ectopic pregnancy, drainage is the efficient means of perfecting the operation. I have removed large quantities of blood through the tube for days after operation.

When separation of adhesions leaves extensive denuded surfaces oozing serum and blood, or bleeding is reasonably to be expected, the tube is indicated. The glass tube, frequently emptied, has the power to arrest moderate bleeding, and will also give timely notice to nurse and surgeon of serious hemorrhage requiring operative hemostasis. Frequent cleansing and

drying of the peritoneum act as a hemostatic. When the operation is necessarily prolonged, with extensive manipulation, excessive secretion will follow and drainage is indicated. Cases of malignant disease require drainage when subsequent infection is probable.

In certain cases the peritoneum will be found thickened and unfit for rapid absorption of fluids, and septic changes may occur before contained fluids are absorbed. Drainage is necessary in these cases.

In old subjects, in patients enfeebled by prolonged pressure and impaired nutrition, and in those of cachectic condition, the emunctories are impaired, and drainage will be required when it might safely be omitted in robust subjects.

When operations are done upon patients in profound shock, when for any cause operation is prolonged, valuable time may be saved by irrigation and drainage. I am sure I have succeeded in saving patients in this way who would have succumbed had minute attention been given to bleeding points and sponging. By inserting the glass tube the suturing may be done while an assistant empties the abdomen with a syringe through the tube, and the patient is hurried to bed. In this way drainage may be used to abbreviate anesthesia and operation, and thereby prevent shock. I cannot too strongly emphasize this important function of the drainage tube in abbreviating operations. It cannot be overestimated in importance, and will enable the surgeon to save many lives which otherwise would be lost.

After operations for pyosalpinx, with or without communication with bowel or bladder, and after operation for perforative appendicitis, drainage is a necessity which cannot be disregarded without great risk of life. These forms of pelvic abscess cannot be successfully treated without drainage. If one has ever examined the interior of such an abscess after it is emptied, and observed the layers and shreds of lymph and sloughing tissue, I do not see how the necessity for drainage could be questioned. Indeed, in certain classes of cases in pelvic surgery it is unsurgical to discard drainage.

Turning now to the objections which have been urged against drainage, I will notice first the frequent objection that the tube is quickly shut off from the general peritoneum. It is probable that in cases of average cleanliness the general peritoneum is shut off from the tube in sixty or seventy hours. That the

time of drainage from a large area varies in different cases every surgeon who has successfully used the glass tube must be convinced. I have seen the tube run freely for five or six days, giving unmistakable evidence of draining the field of operation, and in some cases have observed successive diminution and increase of discharge which could not have occurred had the tube been circumscribed by adhesions. With the patulous tube resting in the hollow of the sacrum, the patient lying on the back, fluids percolate between the intestinal loops and gravitate into the sink of Douglas' space. Frequently repeated cleansing by the suction of a long-nozzled syringe will remove large quantities of fluid débris within the first twenty-four hours. When the tube is properly placed and manipulated, I am sure it can be readily demonstrated that it drains for days effectively.

The objection which has deterred so many surgeons from using the drainage tube is the fear of septic infection—septic peritonitis. I could adduce a long series of cases in my own personal experience to show that there is no risk whatever of such infection if the tube is properly cared for, and any nurse of neatness and intelligence can quickly learn the proper method of cleaning and taking care of the tube. Further on I shall endeavor to indicate how the tube should be managed.

It has been claimed that adhesions around the tube may form a fibrous band along the drainage tract, which may strangulate the bowel and cause obstruction. I have never known this to occur, and in a number of cases where it became necessary to subsequently reopen the abdomen I have looked for such bands and could never find them. If the tube is clean and no irritating substances are introduced into the tract, the adhesions are thin and quickly disappear. Even firmly organized fistulous tracts disappear in a comparatively short time after they cease to discharge.

It has been asserted that shreds of omentum or adhesions could become incarcerated in the perforations of the tube and prevent easy removal of the tube. I have never seen such fixation of the tube, and if the tube be frequently lifted and gently turned by the nurse when cleaning it, such incarceration cannot occur.

Should prolonged discharge persist after removal of the tube, forming a sinus, it cannot fairly be attributed to the irri-

tation of the tube. The sinus is the result of a pathological condition along the tract of the tube, and this of itself makes an indication for drainage; otherwise there would be an accumulation within the abdomen, necessitating an outlet. When the foreign substance, which may be disintegrated tissue unremoved in the operation or an infected ligature, comes away, the sinus will quickly close.

Fecal fistula is by no means infrequent after abdominal and pelvic operations. The intestinal coats are frequently injured and torn in separating dense adhesions. Often the intestinal coats are devitalized in close proximity to suppurating surfaces to which the gut becomes fixed by adhesions. The separation of adhesions under these circumstances is readily followed by fecal fistula. The drainage tube serves a most valuable purpose in these cases by providing an outlet for evacuating effused contents of the bowel. Only extreme disregard of the necessary precautions for placing and care of the tube could produce an opening in the bowel.

To the drainage tube has at times been attributed the occurrence of ventral hernia subsequent to abdominal section. In my own experience I have not known it to occur save in one case in which the tube was used. It has been known to occur after operations in which no tube was used, and I believe it is quite generally conceded to depend more upon imperfect suturing of the parietes than any other cause. If the suturing be carefully done, and the tube be of proper size and properly manipulated, the risk of ventral hernia is not increased by the presence of the tube.

In conclusion I will endeavor to express my conception of the proper method of drainage in pelvic operations. Capillary drainage, either by gauze or wick, has only a limited sphere of usefulness. It is admirably suited for the open treatment of an abscess cavity and in cases where it is necessary to combine hemostasis with drainage. It drains serum, and fibrin is entangled in the meshes of the gauze, forming strong adhesions to tissue surfaces. Drainage by gauze is limited to the surface touched. This method is especially applicable where superficial closure of the parietes must be prevented to secure healing from the bottom.

No method of drainage in pelvic surgery is comparable to the glass suprapubic tube aided by suction. The tube should be

smaller than Keith's modification of Koeberlé's tube. The modification as used by Price is well-nigh a perfect tube. While the length of the tube should vary to suit the depth of the pelvis, the diameter should be about one-half of an inch, with open end and numerous perforations.

The tube should be placed in position with great care. Passing two fingers to the bottom of Douglas' space or the cavity to be drained, the intestines are carefully held aside and the tube placed in position, the outer end being in the lower angle of the incision. Care must be observed that no loops of intestine are beneath the tube. While the surgeon is closing the incision and completing the toilet an assistant must place his finger on the tube and gently and firmly hold it in position. The tube should be carefully emptied before the dressings are fastened, to make sure as to hemorrhage and prevent overflow. A piece of dental rubber-dam about twelve inches square, punctured in the centre, should be passed over the collar of the tube. A handful of absorbent cotton or gauze should be placed over the end of the tube, and the four corners of the rubber brought together and pinned. A towel is carefully placed over all to prevent the patient's hands or the bed-clothing from displacing the dressing.

The object of drainage is to dry as quickly as possible all the peritoneum around the bottom of the tube. As already indicated, fluids gravitate toward the sink in the hollow of the sacrum while the patient is on the back. To facilitate this the outward flow must be constantly encouraged and made as free as possible. This flow is prevented when the tube is filled with fluid and allowed to remain. When this is permitted the fluid within the peritoneum is subjected to a backward pressure equal to the weight of the column of fluid in the tube. In order to facilitate rapid occlusion of the general peritoneum from the drained area, and perfect drainage, the tube and tract must be frequently cleaned. This can best be accomplished by a long-nozzled syringe. An addition of a small piece of rubber tubing may be attached to the nozzle, if necessary, to reach the bottom of the tube.

When the drainage is profuse the tube should be emptied at first every fifteen minutes, gradually increasing the interval as the quantity of discharge diminishes. The tube should be cleaned at least once every hour during the first six hours after

the operation. Every hour or two, when cleaning the tube, the nurse should gently elevate in a minute degree the end of the tube and rotate it, so as to keep it free and patulous. The dressings should be so arranged as to fit around the collar of the tube snugly, and if soiled by overflow (which may be avoided by care) they should be changed. The nurse should be taught to observe the same care and precautions in the care and cleansing of the tube as in doing any other essential part of an aseptic operation. The nurse should never leave the patient alone while the tube remains in the abdomen. The time for removal of the tube is when the discharge ceases. This, of course, will vary. It is very exceptional that it is required longer than thirty-six or forty-eight hours. When the tube is removed a saline purgative should be administered, so that supplementary drainage may be had through the intestinal tract. When necessary a small rubber tube may be passed through the glass tube and the glass removed, leaving the rubber in the drainage tract by way of precaution. This should be done always when the tube is removed under thirty-six hours. In more than one instance I have known retention of fluid at the bottom of the pelvis, and reopening of the tract after its closure, to follow neglect of this precaution. When the rubber tube is made to replace the glass tube in this way, it should be drawn up and cut off a half-inch or more daily, so as to secure gradual closure from the bottom.

When peritoneal drainage is conducted in this way it is thoroughly efficient, and I have never known septic infection to occur thereby. I have not deemed it necessary to consider in this paper pelvic drainage by vaginal puncture, as it is both inefficient and dangerous—inefficient because rubber and gauze will be obstructed and glass is impracticable; dangerous for the reason that the tube and opening cannot be kept clean.

231 WEST CHESTNUT STREET, LOUISVILLE, KY.

DEVELOPMENT OF THE PLACENTA IN TUBAL GESTATION.¹
A MICROSCOPICAL STUDY.

BY

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(With eight illustrations.)

No object of research presents points of greater interest to the physiologist than the process by which the circulation of the fetus is brought into close and intimate relation with that of the mother, through the combined biological and pathological forces which culminate in the formation of the placenta.

To the surgeon, physician, and pathologist no subject is more interesting than *ectopic gestation*, yet it has not received from the pathologist the attention which its dangers and frequency demand.

The distinguished surgeon Lawson Tait has accomplished a vast amount of scientific work on this subject, and has presented broad and comprehensive views in his papers as published, and his reports of remarkable surgical operations which stand as beacon lights. Light has also been thrown upon the subject in the confirmatory anatomical studies of Hart and Carter by means of homolographic frozen sections. Still, there are many points, even in the earliest histological changes, on which we need information, and the various and wide pathological departures here found must be investigated.

T. G. Thomas, in the "American System of Gynecology," refers to the rapid increase in "vascular apparatus" and "blood supply" occurring in the gravid tube, with the statement that "every student is familiar with the changes that occur in the uterus when the impregnated ovum attaches itself to the endometrium.

"All these changes occur in ectopic as in normal pregnancy,

¹ Preliminary Report presented at the International Gynecological Congress, Brussels, 1892.

the only difference being that the signs of pregnancy are less regular and reliable, and that the creation of the placenta being called for upon tissues not intended by Nature for the vicarious work now imposed upon them, the excessive and exaggerated growth of vessels which results surpasses everything of the kind ever witnessed in the human economy."

I. *Tissue Changes of the Tubal Mucosa in the Development of the Decidua.*—The changes in the constituent anatomical elements of the Fallopian mucosa, occurring in consequence of tubal gestation, are of exceeding interest.

Berry Hart¹ says: "The normal Fallopian tube near the decidua was markedly infiltrated with cells, and wherever villi were, the *columnar epithelium* of the mucous membrane *has disappeared*."

He does not attempt, however, to explain what has become of the epithelia. Bland Sutton² states "that the wall of the tube seems to stretch and thin." Most authors are satisfied with the statement that the tube walls at the site of placental growth are considerably thinned. A recent writer, Gustave Klein,³ when speaking of the changes in the columnar epithelia of the utricular glands taking place during the development of the decidua, does not admit any other change in the epithelium than a broadening and flattening of these epithelia, which change he attributes to an *increased afflux of liquids*. German authors who have spoken of an active participation of the epithelia of the utricular glands in the formation of decidual tissue, were of the opinion that the decidua is an *epithelial growth*.

E. A. Ayers⁴ is the only investigator who has stated that the epithelia of the utricular glands, after breaking up into medullary or indifferent tissue, assist in the formation of the decidual tissue, which he justly describes as myxomatous and therefore of the connective-tissue type. In the light of the views held by most histologists at the present time, Ayers' statement sounds almost like heresy, since it is not generally admitted that epithelial tissue will eventually change into connective tissue. My own studies in the mucosa of the gravid Fallopian tube entirely corroborate the statement of Ayers.

¹ Edinburgh Medical Journal, 1857, p. 332.

² "Surgical Diseases of the Ovary and Fallopian Tubes."

³ Gustave Klein: "Entwicklung und Rückbildung der Decidua," *Zeitschrift für Gynäkologie*.

⁴ "Studies in the Decidua," *Medical Record*, April, 1890.

For the specimens of tubal gestation which I have used in these investigations I am indebted to Dr. Joseph Price for six cases; Prof. B. F. Baer and J. M. Baldy, each one; also Dr. Judson C. Smith, of the New York Post-Graduate School, one. The late Prof. H. F. Formad, coroner's physician of Philadelphia, placed his valuable series of thirty-five specimens (which were removed post mortem) at my disposal. I am glad to take this opportunity to express to all of these gentlemen my thanks for these most interesting and valuable specimens. In addition to the above specimens, I have also examined one of my own which I successfully removed in 1887 from a patient who was in imminent danger. This specimen was exhibited at the Surgical Section of the Academy of Medicine on January 8th, 1888.¹

I have prepared the specimens for microscopical research by first hardening in a half of one per cent solution of chromic acid, embedding and cutting in celloidin, and mounting in glycerin. A large number of sections proved to be useless, simply being sections of coagulated blood.

The periods of Fallopian gestation ranged between the first and the fourth month; those of the early stages being most suitable for the study of the tissue changes in the mucosa of the tube, those of the third and fourth month being best for the study of the formation of the villi of the placenta.

The first change observed in a section of the mucosa in the wall of the Fallopian tube (in the vicinity of the forming decidua) is a broadening of its connective-tissue layer, accompanied by a simultaneous enlargement and engorgement with blood of the capillary and venous blood vessels (see Fig. 1).

This phenomenon has long since attracted the attention of the pathologist, and quite recently Lawson Tait,² to whom surgery is indebted for so much of our knowledge on the subject of ectopic gestation, has shown that the villi grow into the sinuses of the tube wall with a "simultaneous enormous increase in the diameter of all the vessels of the tube." The peritoneal layer at and around the decidual attachment shows the same change, becomes thinned and softened, and, finally yielding to the growing embryo, gives way and ruptures.

Low powers of the microscope suffice to show this dilatation and engorgement of the blood vessels, which are surrounded by

¹ New York Medical Journal, June 30th, 1888.

² British Gynecological Journal, February, 1890.

a delicate fibrous connective tissue, partly edematous, partly transformed into protoplasm, and crowded with indifferent or medullary corpuscles. At this stage the epithelial layer appears unchanged, though covered with a few scattered blood corpuscles; the absence of the cilia may be attributed to an imperfect preservation of the specimen. This statement holds good only for the epithelial wreath in the immediate neighborhood of the decidual growth. Where the decidua has encroached upon the

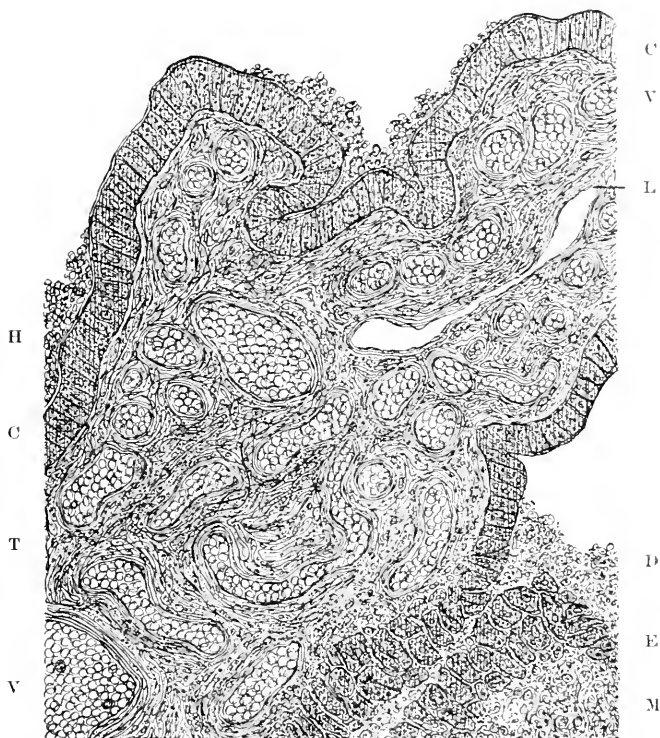


FIG. 1.—Engorgement of dilated blood vessels with blood upon approach of the decidua. $\times 200$. C C, columnar epithelia, the cilia lost; H, blood clot attached to the epithelia; T, connective tissue, mostly reduced to protoplasm; V V, venous and capillary blood vessels engorged with blood; L, lymph vessel compressed; E, epithelia in beginning proliferation; D, decidual tissue entangled with blood corpuscles; M, mucosa transformed into decidual tissue.

epithelial layer (Fig. 1, D, E) a marked change is observable in the form and appearances of the epithelia. They have become coarsely granular, have enlarged in size, split up into irregular lumps, and finally have been transformed into decidual tissue. In order to ascertain accurately the changes in the epi-

thelia, let us study a perfect specimen under a magnifying power of six hundred diameters (see Fig. 2). The first noticeable change in the protoplasm of the epithelia is that it has become coarsely granular, whereby the original nucleus is lost to sight. This coarse granulation has long since been described by Virchow under the term "cloudy swelling," and close analysis proves that this condition (which immediately precedes pro-

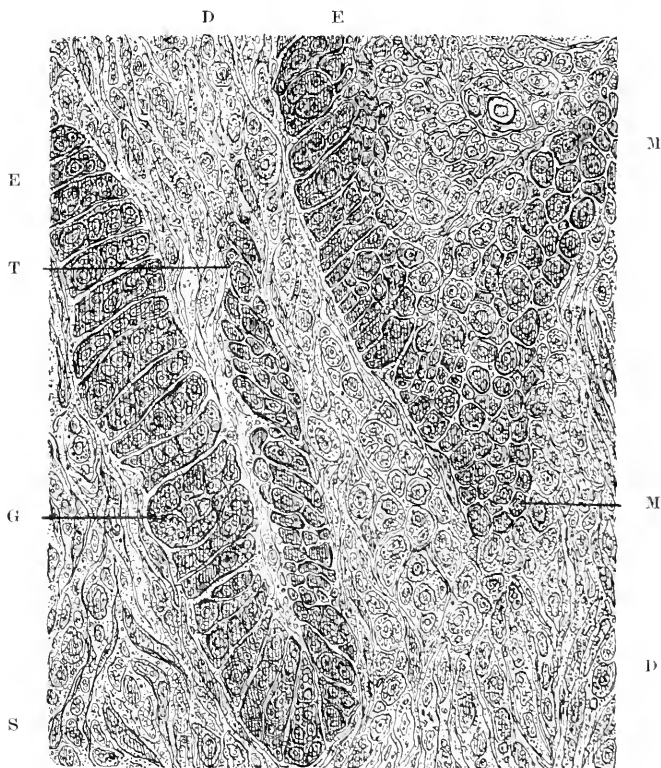


FIG. 2.—Columnar epithelia of the mucosa of the tube changing to decidual tissue. $\times 600$. EE, columnar epithelia in beginning proliferation; G, columnar epithelia transformed into a multinuclear body, a so-called giant cell; M, medullary corpuscles sprung from epithelia; T, transition of medullary corpuscles, derived from epithelia, into decidual tissue; DD, decidual tissue at an early stage of development; S, spindles of decidual tissue.

liferation) is caused by an increase in the size of the so-called granules of the protoplasm. These granules are now generally recognized as the points of intersection of the delicate reticulum of the living matter within the protoplasm. By a further increase in the bulk of the granules the epithelium appears to be completely filled with these lumps of living matter, now

characterized by a distinct, glossy appearance and an apparent lack of definite structure. Each of these lumps may eventually grow up to the size of a so-called indifferent cell, which may be more correctly described as a granular protoplasmic body, exhibiting one or several nuclei, lying within the original epithelium, which has caused the bulk of the epithelium to be noticeably augmented. This process of proliferation of the epithelial protoplasm was well known to the older pathologists, who termed it "endogenous new formation within an epithelial mother cell." The columnar epithelium at this stage, though enlarged, still retains its original shape and relative position, although it now appears to hold within its interior from two to ten protoplasmic lumps or cells, which are either homogeneous or nucleated. The intercellular cement substance between the columnar epithelia is either normal and traversed by faint vertical spokes, or it has become narrowed and scarcely perceptible—a change probably due to its liquefaction. Occasionally we meet with large "mother cells," which have evidently originated by a coalescence of two neighboring columnar epithelia (Fig. 2, G) after the liquefaction of the layer of intercellular cement substance between them. Such fused epithelia are what previous authors have termed "giant cells." These so-called "giant cells" exhibit in their interior the same evidences of proliferation that we have observed in the single epithelia. By tracing still further the changes of the epithelia along the epithelial row—that covers a fold of the tubal mucosa—at a more advanced stage, we notice a partial or complete breaking-up of the epithelia into small bodies more or less angular, which still retain the original yellowish tint of the epithelia, and are conspicuous by the absence of stain (with ammoniacal carmine). It must necessarily follow that by the partial splitting-up of the epithelia, especially at their inner border, into medullary corpuscles, the epithelia appear "broadened and shortened," as described by Gustave Klein in the epithelia of the utricular glands. After a complete breaking-up of the original epithelia, a mass of indifferent or medullary corpuscles has originated, and these, having now lost their epithelial character, are known as *embryonal corpuscles*, and from these the myxomatous tissue of the decidua is developed.

A convincing proof of the changes occurring in the tubal epithelia can be obtained by the study of a specimen with high

amplifications (see Fig. 3). The epithelial row is conspicuous, firstly, by the columnar shape of the constituent elements; secondly, by a yellowish tint which is generally characteristic of epithelial formations; and, thirdly, by the lack of carmine stain. Even in a single field of the microscope we are able to trace all the changes of proliferation that have just been described. First we notice within one epithelial body a varying number of

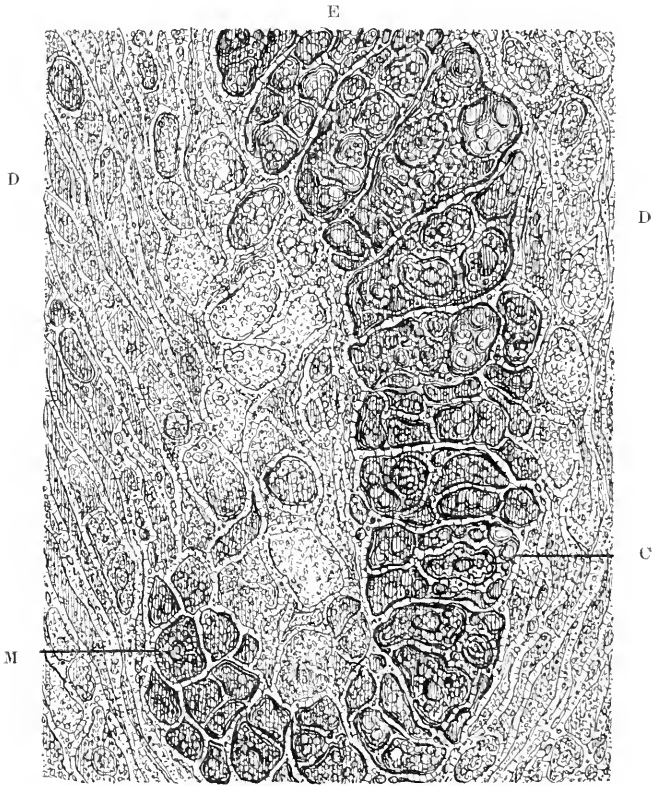


FIG. 3.—Columnar epithelia of the mucosa of the tube changing to decidua tissue. $\times 1,200$. E, columnar epithelia in advanced proliferation; C, columnar epithelia split up into lumps, the medullary corpuscles; M, medullary corpuscles, the remnants of previous epithelia; D D, decidua tissue.

partly homogeneous and partly vacuolated lumps, separated from one another by a light rim of intervening cement substance. Next we see, with an advancing increase of the bulk of the epithelia, some of the lumps being transformed into a reticulated body of protoplasm, holding within its centre a nucleolus of high refraction. Further on we observe such protoplasmic bodies

apparently detached from the mother body; still further on the mother body has split up into a number of polygonal lumps, the so-called *medullary* or *embryonal corpuscles*, and as a result of these changes the original shape of the epithelium is lost. At last we see the medullary corpuscles themselves splitting up into smaller pieces, representing lumps of a finely nucleated protoplasm, which either remain unchanged in the shape of finely reticulated and nucleated bodies, the so-called decidual cells, or they become elongated and produce spindle-shaped fibres, or they are transformed into a faintly reticulated myxomatous basic substance. Whatever may be the size and shape of the original epithelia or their offspring, all of the embryonal corpuscles remain interconnected by delicate spokes traversing the intervening cement substance. This same feature remains visible throughout all the constituent elements of the decidual tissue, from the earliest protoplasmic stage up to the full height of development of the myxomatous tissue.

My researches enable me to fully corroborate the statement of E. A. Ayers concerning the changes in the epithelia of the utricular glands into a myxomatous decidual tissue. Indeed, the columnar ciliated epithelia of the mucosa of the Fallopian tube do disappear in the formation of the decidua. They disappear by being themselves transformed into decidual tissue.

For the description of the changes occurring in the other constituent parts of the tubal mucosa, the fibrous connective tissue, and the smooth muscle fibres, I wish to refer to Fig. 4, in which the changes are illustrated.

Here we see that, in the earliest stages of decidual formation, not only the fibrous connective tissue but also the smooth muscle fibres actively participate. The drawing is made from a specimen of tubal pregnancy at about the sixth or eighth week of gestation. The fibrous connective tissue of the mucosa, as well as that between the muscle fibres and muscle bundles—the so-called *perimysium*—has returned to a stage of indifferent tissue representing a continuous layer of finely granular protoplasm, in which globular and spindle shaped bodies are but faintly recognizable. Many of the protoplasmic bodies lack as yet a nucleolus; others show nuclei which are scarcely recognizable. Obviously this is the earliest stage of indifference, from which afterward either large globular and nucleated bodies, the so-called decidual cells, will develop, or an infiltration

with myxomatous tissue occurs in certain fields, and all are enclosed by a myxomatous reticulum. The smooth muscle bundles are conspicuous by the scattering of their constituent elements, the spindle-shaped, smooth muscle fibres. These muscle fibres without exception show the structural images that have just been described as occurring in the columnar epithelia.

At an early stage of proliferation the muscle fibre appears

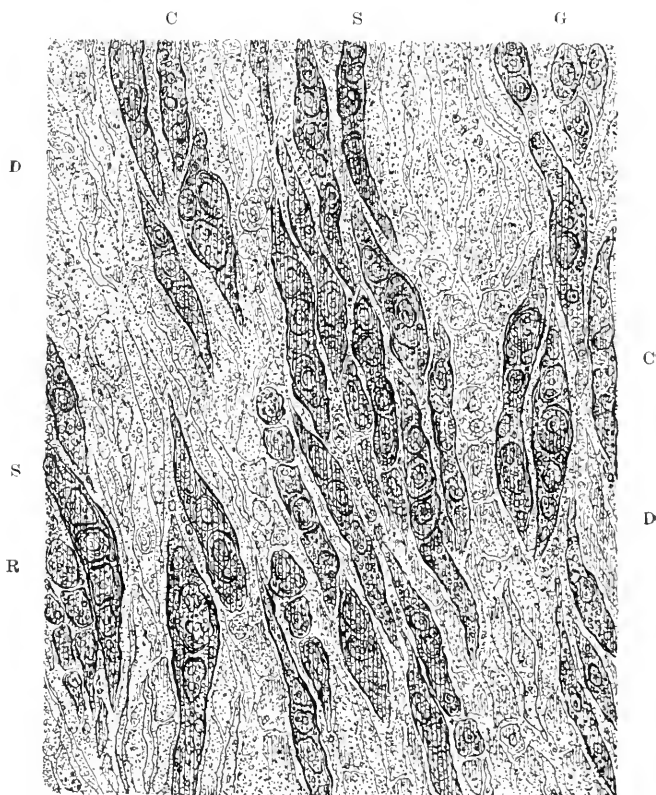


FIG. 4.—Smooth muscle fibres of the mucosa of the tube changing to decidual tissue. $\times 600$. C C, coarsely granular muscle fibres; S S, muscle fibres breaking up to medullary corpuscles; R, row of medullary corpuscles spring from previous muscle fibres; G, group of medullary corpuscles; D D, decidual tissue in an early protoplasmic stage.

coarsely granular; next the granules increase to lumps of a peculiar yellowish tint and develop a high degree of refraction. Each lump may grow up to a nucleated protoplasmic body, with a simultaneous enlargement in size of the original spindle. Still further on the spindle breaks up into a row of medullary or

indifferent corpuscles, which in turn break up into finely granular pieces of protoplasm, fusing together into a continuous layer of protoplasm from which at last develops the decidual tissue. Most if not all of the smooth muscle fibres of the mucosa disappear, and probably those of the wall of the tube as well, by being transformed into decidual tissue through the intervening stage of embryonal or medullary tissue. If some authors claim to have seen smooth muscle fibres in the decidua of the uterus, this is best explained by the supposition that a certain number of smooth muscle fibres have escaped transformation into decidual tissue.

II. *The Development of the Villi of the Placenta in Tubal Pregnancy.*—W. Reitz¹ first drew attention to the peculiar way in which the young villi of the placenta develop during the third and fourth months of uterine pregnancy. The already formed villi, he says, are not covered by isolated cell bodies, but only by a continuous layer of protoplasm with numerous nuclei. From this protoplasmic layer buds or knobs are seen bulging forth, which become thickened and supplied with numerous nuclei, but without a trace of separation into single epithelial cells. Afterward, he says, the knobs or threads become hollowed out, and the loops of the blood vessels grow into the central space of the knob, being suspended in a perivascular space. According to his views the epithelial layer is represented by granular protoplasm, with interspersed nuclei, only in the juvenile condition of the villi, whereas later on the layer splits up into single epithelia. A similar process was known at that time to occur in the formation of capillary blood vessels, which originally existed as solid buds or threads, and were later on thought to split up into single endothelia, building up the wall of a fully formed capillary.

This discovery of Reitz seems to have attracted but little attention, since, so far as I am aware, no other investigator has dwelt on this subject. Nevertheless the topic is of the utmost biological importance, for, if true, it would furnish a strong proof of the view claimed by Rabl, that all tissues of the body are originally epithelial in nature, and their separation into connective tissue, muscle, and nerves would have to be considered as a secondary process.

¹ "Beiträge zur Kenntniss des Baues der Placenta des Weibes." Sitzungsber. d. Acad. d. Wissensch. in Wien, 1868.

The material used in my researches furnished several sections of tubal pregnancies in the second, third, and the beginning of the fourth month, and in these I have been successful in obtaining beautiful sections of the placenta by treatment in the above-described manner. From what I have seen I am able to fully corroborate the statements of W. Reitz.

We are struck in many instances by a slight thickening at the

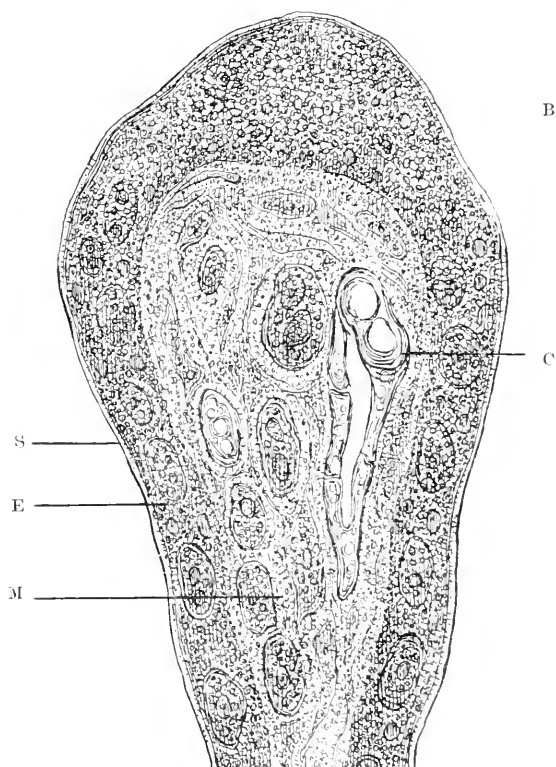


FIG. 5.—Thickening of epithelial layer at the apex of a villus, a future bud. $\times 1,200$. M, myxomatous tissue in centre of villus; S, seam of cement substance; E, epithelial cover of villus; B, thickened epithelial protoplasm.

apex or at the side of an already formed villus, which thickened portion appears almost homogeneous and of a higher gloss than the epithelial covering elsewhere. The latter I have never seen composed of distinct epithelia, but always consists of continuous layers of protoplasm with interspersed nuclei. The thickened portion of the epithelium is, as a rule, conspicuous by reason of a deep carmine stain.

The next change that we observe is a pronounced broadening of the epithelial layer, exhibiting, with medium powers of the microscope, a fine granulation in its interior.

Occasionally we observe in such a knob a central homogeneous portion deeply stained with carmine, and a peripheral granular portion less colored. If we place such a knob under the highest powers of the microscope we are able to observe the following (see Fig. 5):

The epithelial layer is composed of a markedly reticulated protoplasm, in which we find embedded, at pretty regular intervals, hollow oblong nuclei containing in their interiors coarse granules—the so-called *nucleoli*—all connected with one another by delicate spokes running from the most peripheral granules into the shell of the nucleus. In the surrounding protoplasm we see coarse granules, greatly varying in size, all of them interconnected by conical spokes, and on an average noticeably coarser than those in the central myxomatous tissue of the villus.

The bud likewise consists of reticulated protoplasm, in which nuclei are absent, and in their stead we see only scattered coarse granules, forming, as it were, a hub to a beautiful wheel the spokes of which inosculate with the felloes, composed of smaller granules, in the shape of a wreath. The entire epithelial layer is surrounded by an extremely thin, glossy layer of cement substance destitute of carmine stain, and also exhibiting the reticulated structure of protoplasm, though represented only by faint, delicate threads piercing it. The central portion of the villus is made up of a myxomatous tissue, in which we recognize globular or oblong, partly vacuolated, partly nucleated, protoplasmic bodies, surrounded by a myxomatous network of protoplasm enclosing a scanty amount of a faintly reticulated myxomatous substance. The connective tissue holds a varying number of capillary blood vessels. In the villus that has served for illustration we recognize a capillary blood vessel at an early stage of formation—viz., a hollowed-out or vacuolated frame of living matter, ensheathed by a thickened wall of living matter which is likewise traversed by minute vacuoles.

The next stage of development of the bud is its growth upward and the appearance of pedicle, giving the bud a pear-shaped appearance (see Fig. 6).

In a specimen exhibiting the juvenile villi we frequently meet with isolated ovoid or pear-shaped lumps: these are buds

that have become detached from the mother villus in the process of cutting the sections. There can be no doubt as to the origin of such pediculated buds, since we frequently see them attached by their pedicles to a noticeably thickened layer of protoplasm, the future epithelial covering. At the lower border of the epithelial layer we observe an increased number of lumps of living matter with solid and hollowed-out nuclei. This spot has also assumed a deeper carmine color than the rest

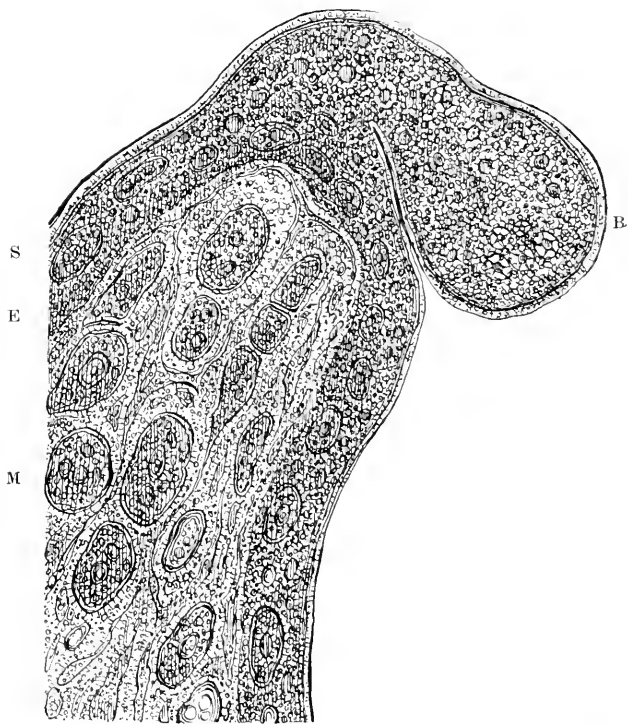


FIG. 6.—Budding villus of the placenta in third month of development. $\times 1,300$. M, myxomatous tissue in centre of villus; E, epithelial cover of villus; S, seam of cement substance; B, protoplasmic bud of the epithelial layer.

of the protoplasm, including that of the bud. The glossy, yellowish layer of cement substance in our specimen is visible along the whole periphery of the epithelial layer, as well as that of the bud; though I wish to emphasize the fact that this layer is absent in many villi, as well as in their buds. Nowhere, however, is there a trace of a ledge of cement substance separating the protoplasmic layer into epithelial bodies; nothing is indica-

tive of such a future separation, unless we consider the distribution of oblong nuclei at pretty regular intervals to indicate the location of future epithelia. The centre of the villus is far advanced toward the formation of myxomatous tissue. We see a limited number of oblong, reticulated, protoplasmic bodies, partly single, partly arranged in rows. Around these bodies a small amount of basic substance has formed, exhibiting, but faintly, the protoplasmic structure. The fields of basic substance are surrounded by net-like protoplasm characteristic of myxomatous tissue generally.

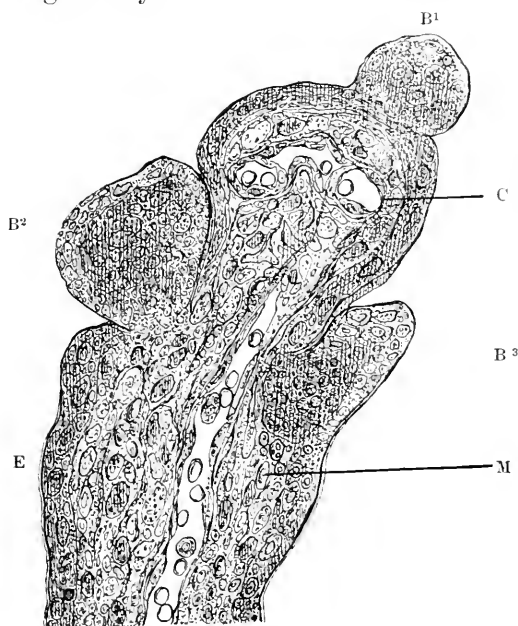


FIG. 7.—Budding villus of the placenta in third month of development. $\times 600$. M, myxomatous tissue in centre of villus; E, epithelial cover of villus; C, capillary blood vessel in transverse and longitudinal section; B¹, bud of protoplasm with faintly marked nuclei; B², bud with beginning differentiation between a peripheral and central layer; B³, bud with further advanced differentiation.

The next stage in the development of the villi, as shown with a medium power of the microscope, is illustrated in Fig. 7. The mother villus in this case has sent upward a pear-shaped prolongation which does not differ in structure from the original villus, but is recognizable as a secondary formation by a narrow neck at its implantation. At the neck two new buds have made their appearance, and a third one is visible at the apex of the secondary villus. Three different stages of development are discernible

in these several buds. The uppermost (B^1) is as yet without differentiation, though showing a number of faint nuclei. The left bud (B^2) shows a beginning differentiation into an outer epithelial layer abounding in small nuclei, and a central portion crowded with lumps of living matter of varying sizes and shapes. This latter portion obviously will afterward produce the connective-tissue centre of the villus. The right bud (B^3) seems to

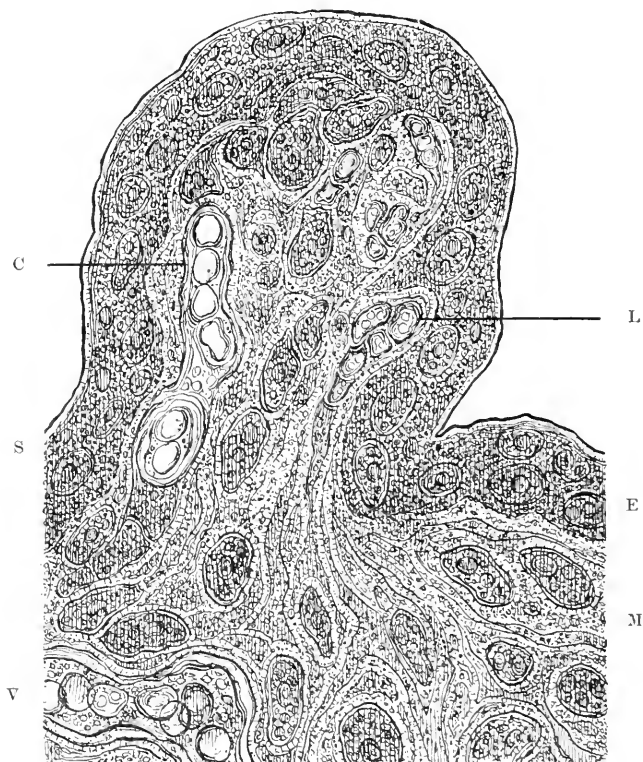


FIG. 8.—Bud of villus after separation of epithelium and connective tissue. $\times 1,200$
 E, epithelial layer of villus; S, seam of cement substance; L, cluster of lumps of living matter; C, newly formed capillary blood vessel in the interior of the bud; M, myxomatous tissue of villus; V, capillary blood vessel of villus.

be still further advanced in differentiation, since its central portion shows a large number of lumps of living matter, embryonic or medullary corpuscles, most of which are hollowed out or pierced by small vacuoles. If W. Reitz maintains that the central portion of the bud is hollowed in the progress of development, I must disagree with him. I have never seen any hollow

ing, except that which is caused by the detachment of the epithelial layers and is altogether artificial. Nothing occurs in the bud but a differentiation into two principal tissue varieties—viz., an outer epithelial and an inner myxomatous tissue. Reitz is correct, however, in saying that the capillary blood vessels grow into the centre of the villus by sprouts taking origin from the older blood vessels. The originally solid sprouts afterward become vacuolated and hollowed out, their central cavity inosculating with the older blood vessels and thus admitting access to the blood corpuscles.

The last stage in the budding of a placental villus is represented in Fig. 8.

The most conspicuous feature of this villus is the irregularly fluted contour of the epithelial layer toward the connective tissue. At the apex of the bud a number of indifferent corpuscles is seen in close relation to the epithelial layer, and closely resembling the formation illustrated in the preceding figure. It is scarcely possible to accurately differentiate between epithelium and connective tissue in this situation. The medullary corpuscles obviously furnish the material for the production of the connective tissue. A vacuolated blood vessel is seen penetrating the bud (at C), although I was unable to trace the connection of this vascular sprout with an older capillary, such as we see in large numbers traversing other villi.

The summary of the conclusions arrived at in my researches is as follows :

1. In the earliest stages of the formation of the decidua the folds of the tubal mucosa become enlarged, their connective tissue returns to protoplasm, their blood vessels become considerably dilated and engorged with blood.

2. Upon the approach of the decidua the columnar ciliated epithelia of the tubal mucosa enter upon a process of proliferation resulting in the production of medullary or embryonal corpuscles.

3. The medullary corpuscles are developed from previous columnar epithelia, and in turn transformed to decidual tissue. Although epithelium is considered by most histologists a tissue unable to produce other than epithelial tissue, I can positively maintain this transformation of the tubal epithelia into the myxomatous connective tissue of the decidua.

4. The delicate fibrous connective tissue of the tubal mucosa

is reduced to protoplasm, the stage of indifference, from which decidual tissue originates.

5. The smooth muscle fibres of the tubal mucosa proliferate, produce medullary corpuscles much the same as the columnar epithelia, and ultimately disappear by being transformed into decidual tissue.

6. In the third month of tubal pregnancy a lively new formation of placental villi takes place, first by a thickening, afterward by a budding-out of the epithelial layer of the older villi.

7. These buds are protoplasmic in nature, and are identical in their structure with that of the epithelial layer which gave origin to them. At first the buds are non-nucleated; later on they become supplied with nuclei.

8. The originally solid buds become differentiated into a peripheral epithelial layer and a central connective-tissue layer. The latter is at first made up of medullary or embryonal tissue, and afterward becomes transformed into myxomatous tissue.

9. The capillary blood vessels grow into the central tissue by a sprouting of the older capillary loops. The sprouts are originally solid, and in turn become hollowed out by vacuolation, thus connecting with the older blood vessels.

10. Since I have demonstrated that the epithelia of the tubal mucosa are transformed into decidual tissue, and that the new villi of the growing placenta originate by a budding of the epithelial layer of the older villi, I have furnished strong presumptive proofs of the views announced by Rabl, that all tissues of the body are originally epithelial in nature.

My studies have been made in Dr. C. Heitzman's laboratory, who assisted me in the drawing of the illustrations.

106 WEST 128TH STREET.

COMPLETE HYSTERECTOMY

FOR MY SECOND CASE OF PREGNANCY COMPLICATED BY FIBROID TUMOR,
WITHIN TEN MONTHS.

BY

JAMES F. W. ROSS, M.D.,
Toronto, Canada.

(With one illustration.)

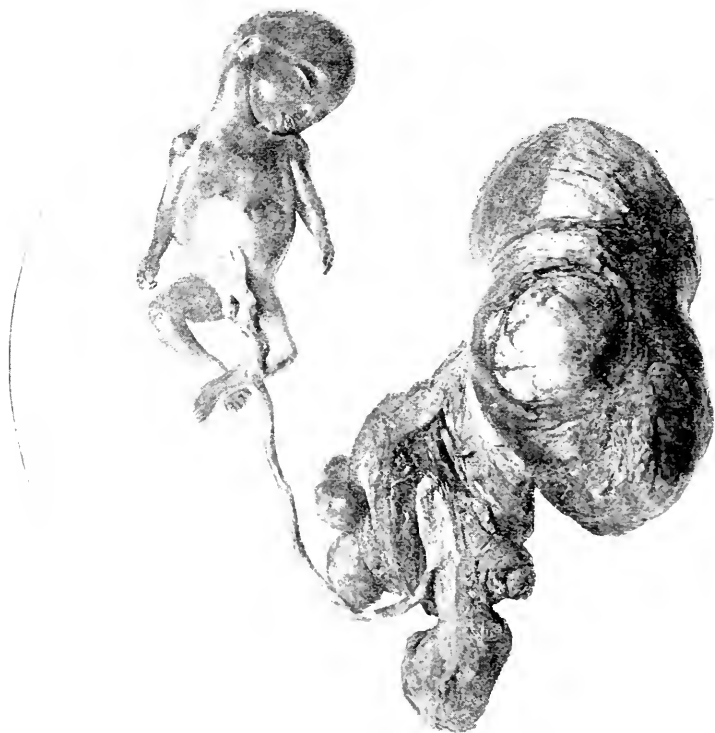
IN the September, 1891, number of THE AMERICAN JOURNAL OF OBSTETRICS I reported, among other cases, one of a large thirty-five-pound myoma growing by a pedicle from the broad ligament, accompanied by a five months' pregnant uterus. In that case a supravaginal hysterectomy was performed. The tumor was removed with the pregnant uterus, and the patient made a good recovery.

On the 4th of March, 1892, a lady consulted me in my office regarding a tumor in the lower abdomen. She was 40 years of age; had been married eleven months, but had never been pregnant. Her complexion was somewhat sallow, general health good, family history good, no dysuria. Menstruation ceased on the 12th of December and had not reappeared up to the time I saw her—namely, March 4th. It had thus been suppressed for nearly three months. The menstruation previous to this had been copious, accompanied by clots, lasting from four to five days. There had been no intermenstrual discharge.

She first noticed a lump in the side in November, 1891, just one month previous to the last menstruation. She only suffered from pain if she stooped. The lump was increasing in size. The tumor, when first noticed, was about the size of a hen's egg, and it could be moved from left to right without causing pain. It never caused any pain until recently, and she suffered from it a little now—an uneasiness if she lay on the left side. When I saw her the tumor was about the size of a fetal head. Owing to the probable existence of pregnancy, no sound was used, and it was difficult without an anesthetic to make out the exact position of the fundus uteri. My diagnosis, as entered at the time,

lay between multilocular ovarian tumor and fibroid tumor, either of them probably coexisting with pregnancy.

The patient was admitted into the hospital under my care for further examination. She suffered from a very severe cough, and, as it continued to trouble her, I advised her to return home for a time and to come back when it was better. She did so. About two weeks after, she returned. The tumor had then in-



creased rapidly in size, and I concluded laparotomy was desirable. Everything was made ready, but a telegram arrived stating that the patient's brother was very seriously ill, and she concluded to return home at once.

A deep sulcus could now be felt between the two masses, one mass being toward the right side of the pelvis, the other mass pressed up against the lower edge of the ribs on the left side. This pressure upward against the ribs caused her great uneasiness, and if you will take a glance at the photograph of

the tumor you will readily understand how inconvenient such a lump would be, pressing against the stomach, the diaphragm, and the heart. It seemed strange that twice operative interference should be postponed, and that after the death and burial of her relative she should return once more.

I operated on the 20th of April. On opening the abdomen I found a large, solid tumor pressed up under the ribs on the left side, and another tumor, covered with nodules, in the pelvis and toward the right side of the lower abdomen. This latter looked like a pregnant uterus. I now examined through the vagina, and, with the hand in the abdomen, concluded that it was a case of fibroid tumor growing from the left side of the fundus of a four and one-half months' pregnant uterus. I put in the corkscrew and drew out the tumor and the uterus, tied up the broad ligaments on each side, put on the rope clamp, and thus removed the tumor. I then had Eastman's staff passed into the vagina, and cut down on this from above through the cul-de-sac of Douglas. I then passed one finger into the vagina—the index finger of my left hand—and began to suture and cut the inter-abdomino-vaginal tissue surrounding the cervix. In this way I removed the entire uterus. I then caught the ligatures together by a pair of forceps passed up from the vagina, and drew down with them a twisted rope of iodoform gauze. The iodoform gauze and sutures were thus lying in the vagina, and the serous surfaces of the peritoneum surrounding the opening were approximated by this funnelling of the hole where the cervix had been.

The patient left the table with a pulse of 82 and a temperature of $98\frac{3}{5}^{\circ}$, while her respirations were but 20. The cough was somewhat troublesome and seemed to return. The discharge by the vagina was quite free and serous. Unless this discharge is free, my experience now tells me that the drainage is very imperfect and the danger to the patient is great. The cases I have had recover after this total extirpation of the uterus have all had a very free serous discharge through the vagina. My friend Dr. Eastman, the originator of this method in America, tells me that he has been thoroughly impressed with the same fact, and now has given up vaginal drainage, using instead drainage through the abdomen after complete approximation of the serous surfaces covering the interabdomino-vaginal opening. If the pouch of the peritoneum in the cul-de-sac of Douglas is congenitally pro-

longed further downward than usual, the opening left after removal of the cervix is not in the most dependent place and therefore will not allow of perfect drainage. A residuum in these cases will remain in the pouch of Douglas. It is well known that if the serous stream is kept flowing away from the system and away from the peritoneum, the danger to the patient is very much diminished. If, however, this drainage is not carried on, but the stream is in the opposite direction and absorption takes place rapidly through the lymph stomata of the peritoneum, the danger to the patient is very much increased.

At a post-mortem examination of one of my patients, who died after complete extirpation, a small collection of pus was found in this very cul-de-sac of Douglas. The opening from the abdomen to the vagina had closed, and drainage was not perfect from the first. The iodoform gauze in the vagina was hardly moistened by discharge. After this operation I found, as in the other cases in which I have performed total extirpation, that the distention occurring on the second and third days was readily overcome by sulphate of magnesia and calomel and a couple of cathartic pills. On the third day the breasts became hard and slightly tender. The patient's temperature never went above $100\frac{1}{4}^{\circ}$, and her pulse reached 112 on the eighth day. On the fifth day a slight bloody discharge was found on the pads over the external genitals. On the ninth day the discharge had ceased coming through the gauze drain in the vagina. On the tenth day the iodoform gauze was drawn out of the vagina. On the twentieth day all ligatures but one were found to be loose and were removed from the vagina. On the twenty-ninth day the patient's temperature was normal, pulse 88, respirations 20, appetite good, and she was feeling very well. The wound entirely healed; all stitches had been removed, with the exception of one stitch that still remained in the vagina, not as yet loose enough to come away. As I have on one occasion cut such stitches away, leaving the knot, I will never do so again. As long as the stitch is left so that it can be pulled by the nurse every day or two, it will readily work its way out. If the end is cut short this cannot be so easily accomplished.

As I was going away from home and the patient was feeling so well, I gave her permission to sit up. She got out of bed the following day and remained well until the 23d of May. On this day she felt well until noon, when she complained of sudden

severe epigastric pain. As I had left town, she was attended by one of my confrères. This pain lasted for twelve hours. It was relieved by opiates, turpentine stupes, and an enema. It became worse again, however, on the following day, and the patient vomited greenish fluid three different times. Enemata were given, but were not effectual. Though the temperature had remained normal, and even subnormal, the pulse now reached 120. On the 25th she felt somewhat easier, but after a time again became worse. She vomited in all sixteen times. Sulphate of magnesia was given, and enemata were repeated several times, but with no effect. On the 26th the vomiting continued. Hiccough occurred several times in the forenoon, temperature at $97\frac{1}{3}^{\circ}$, pulse reached 116. She slept all the afternoon. Toward night the pulse reached 120; next morning—that is, the 27th—it reached 129, respirations 16. In a stupor from 3 to 5 A.M. Vomiting did not occur frequently; enemata were still ineffectual. On the 28th pulse reached 132; the vomiting continued. She died at 6:45 on the 29th.

A diagnosis of intestinal obstruction had, of course, been made. In my absence the friends refused to allow any operative interference. After death it was found that a small portion of intestine had become adherent to the abdominal incision below the edge of the omentum, and that another loop had slipped through above this adhesion between the bowel behind and the abdominal wall in front and had thus become obstructed. A ready relief might have been obtained by operation, had the friends seen fit to accept the only remedy that held out any hope.

When I arrived home I was very much surprised to find that the patient was dead. I never left any patient in a better condition four weeks after operation than I left her in. She was bright and cheerful, and hopeful for the future. The unpleasant surprise spoiled half the pleasure of my holiday.

Much of my concern was for the new operation, or, perhaps more properly speaking, the resurrected operation. Up to this time my cases, though not numerous, had all recovered after total extirpation of the uterus by this method, and I felt that some of the critics would say that this fatal result was in some way due to the method of operation employed. In my own mind, however, though the case ended fatally from intestinal obstruction thirty-nine days after the operation, the method proved itself a

reliable one in all particulars. I never saw an easier or a better convalescence following hysterectomy.

I publish this case because I believe that it is well to publish such cases. They can teach us a great deal. When I read some of the papers consisting of the histories of a large number of cases without a death, I often fail to pick out one single point that is of value; but in nearly every case in which some unusual complication has occurred the idea or suggestion fixes itself in the mind of the reader and is stowed away for future use. I believe that faithful records of unsuccessful cases would teach us more than faithful records of successful cases. But how few of the unsuccessful cases are reported!

As to the operation in this case, one may say, as is so often said, that it was entirely successful. Probably so, as far as the operator was concerned; but what about the poor patient? I consider that an operation is only successful when it either averts impending death, completely relieves certain symptoms, or restores the patient to health. I frequently see, after the record of cases, the fact mentioned—and it seems to be the especial care of the operator to have it mentioned—that the operation was not in any way responsible for the death of the patient. But surely if the operation did no good, and did not save the patient's life, it did not fulfil the expectations of the patient and the patient's friends.

THE MECHANISM OF LABOR.

DIAGRAMMATICALLY REPRESENTED, WITH SPECIAL REFERENCE TO INTERNAL
AND EXTERNAL ROTATION OF THE FETAL HEAD.

BY

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(With six illustrations.)

THE object in presenting this paper to the profession is not with the intention of claiming anything new, but rather with the hope that by the aid of simple diagrams the evolutions of the fetus may be considerably simplified. To the general practitioner the manner in which rotation of the head and shoulders takes

place is usually very visionary and imperfect. Why the fetal head in a normal labor should turn toward the mother's left thigh has always been more or less of a puzzle to him. The more he attempts to figure it out the more confused he becomes, finally deciding to accept the fact as stated, leaving the why and the wherefore to future generations.

The following series of drawings are intended to represent the fetal movements under normal conditions; in other words, the fetus is assumed to occupy the L. O. A. position, with the vertex presenting. The letter S marks the location of the shoulders, while *s* denotes the place they formerly occupied. The same pertains to O and *o*, which represent the occiput. In Fig. 1 we see the general conformation of the brim or inlet of the pelvis, with its diameters in dotted, outline save the obliques,

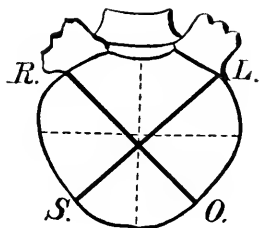


FIG. 1.

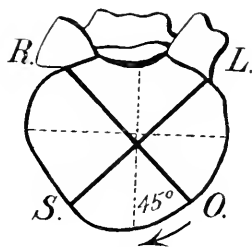


FIG. 2.

FIG. 1.—Head and shoulders at pelvic brim. R. right oblique diameter; L. left oblique diameter; O, occiput; S, shoulders.

FIG. 2.—Head in cavity of pelvis. Direction of rotation.

which are made heavy to show that the occiput lies in the right oblique, R O, while the shoulders, S, are in the left oblique, therefore at right angles to each other, as is normally the relation.

Now, the occiput passes through the inlet, flexion having been accomplished, in the right oblique diameter, the shoulders descending to the pelvic brim in the left oblique. In Fig. 2 we see the occiput, O, moving from the R O of the cavity in the direction of the arrow, which points toward the symphysis pubis. As the occiput rotates forward in its advancement along the parturient canal, the shoulders pass through the inlet in the left oblique diameter.

Thus it will be noticed that while the shoulders, S, are in the left oblique at the brim, the occiput, O, has moved through an

are of 45° , reaching a point corresponding to the origin of the antero-posterior diameter at the pubic symphysis.

This change is not the result of a general axial movement, but is due to a turning of the fetal head upon its axis vertebra to the extent of one-eighth of a circle. In Fig. 3 we assume this to have taken place. The occiput, *O*, is under the pubic arch. *R o* marks the points of departure, while *L S* represents the position the shoulders still occupy.

Internal rotation has now been accomplished, to be succeeded by extension and expulsion of the fetal head. As to the manner in which this extension is effected, it is too simple to require explanation. When the head has emerged from under the pubic symphysis we have external rotation, and the nature of this will be seen in Fig. 4.

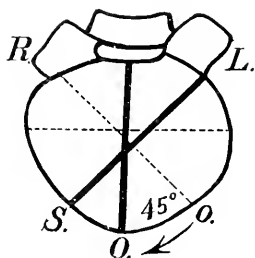


FIG. 3.

FIG. 3.—Head at outlet after internal rotation completed.

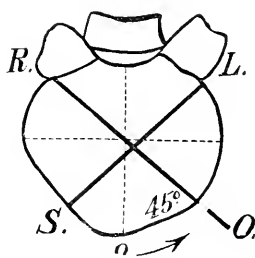


FIG. 4.

FIG. 4.—Partial restoration of fetal head after its expulsion.

At the time the fetal head was passing through the outlet of the pelvis the shoulders occupied the left oblique, *L S*, of the cavity, and there was an eighth turn at the neck, as we saw in Fig. 3. Now, as soon as the head is liberated it tends to return to its normal relation with the trunk—that is, at right angles to the axis of the shoulders. In order to do this it must travel back 45° , as indicated by the arrow (Fig. 4). This restorative rotary movement is readily accomplished, since the head, having been expelled from the pelvic cavity, is free to move.

That the head and trunk are at right angles can be readily proven, for we know that they lie in the right and left oblique diameters of the pelvis respectively, one, however, being without, the other within its cavity. Passing now to Fig. 5, we find the shoulders, *S*, cannot pass through the outlet of the pelvis in the oblique diameter, so they must, like the head, undergo inter-

nal rotation. With the return of uterine muscular contractions the shoulders, $S'L$, rotate through an arc of 45° , moving in the direction of the antero-posterior diameter, advancing at the same time until they emerge from under the pubic arch. This we see is what is diagrammatically represented in Fig. 5. Ls marks the point of departure of the shoulders, S their present posi-

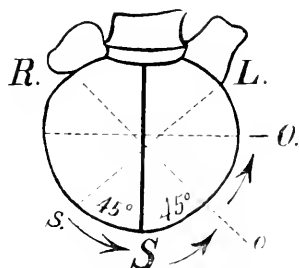


FIG. 5.—Complete restoration of the fetal head with rotation of the shoulders.

tion, while the arrows to the left of the median line indicate the direction the head has rotated externally.

Thus far we have solved the problem of internal rotation of the fetal head, its expulsion and partial restoration, likewise internal rotation of the shoulders; but there yet remains to be demonstrated how the balance of the external rotation of the head (restoration) is produced that it may be in proper relation

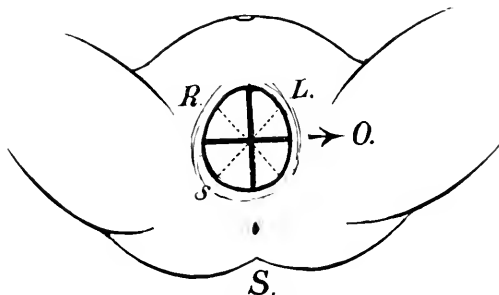


FIG. 6.—Pelvic outlet. Shoulders in antero-posterior diameter, head pointing toward left thigh of mother.

with the fetal trunk and turn toward the mother's left thigh. Reverting now to Fig. 5, we see that as the shoulders rotate from the left oblique ($s L$) position to that of (S) the antero-posterior diameter, they describe an arc of 45° . This movement is in the direction the occiput (O) has already moved 45° , and as there

exists no tendency for the head to turn on its axis vertebra, it likewise moves through an additional arc of 45° , making the distance travelled 90° , or one-quarter of a circle.

With the completion of rotation we find the shoulders (S) lying in the antero-posterior diameter at the outlet of the pelvis, while the antero-posterior diameter of the fetal head is in relation with the extended transverse—in other words, points to the mother's left thigh.

Thus it will be noticed how easily internal and external rotation are of demonstration when the problem is diagrammatically represented. That the law of accommodation governs these evolutions in order that the fetus may pass safely through the parturient canal, is only too apparent; for when the head is abnormally small or the pelvis unusually capacious these normal rotary movements are greatly modified or absent. As to the accuracy of this statement there can be no reasonable doubt, for one has only to study the mechanism of expulsion in cases of early abortion to be convinced of its truth.

427 SOUTH 16TH STREET.

A CASE OF COMPLETE RUPTURE OF THE UTERUS DURING LABOR.¹

BY

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As complete rupture of the uterus during labor is an accident both rare and hazardous to the life of the individual so unfortunate as to be a victim of it, the reading of the history of a case occurring in my service at Columbia Hospital may not be uninteresting to the members of this Society. Concerning the case there are some very interesting points which I wish to bring out, and very much desire a full discussion of them by the Society to-night. Cancer of the uterus figures largely in it as

¹ Read before the Medical Society of the District of Columbia, November 30th, 1892.

an etiological factor, and the treatment of that disease led up to an exciting cause of the rupture of the uterus during labor, and the sudden death of the patient almost immediately afterward. The history of the patient while at Columbia Hospital is as follows:

Mary D., white, age not known, native and resident of Virginia, and by occupation a farmer's wife, was admitted to hospital on the evening of August 13th, 1892. She has had seven children, and one miscarriage at three months, which occurred subsequent to an amputation of the cervix for cancer three years ago. Previous labors were normal, and the seven children are living. She has never had any trouble following labor.

Physical Examination.—All the external genitals relaxed; profuse leucorrhea; lower extremities edematous; vagina relaxed; child presenting by vertex in L. O. A. position; cervix uteri surrounded by undilatable, cicatricial tissue; patient has no recollection of date of last menstruation, but is apparently eight months, or longer, pregnant; sounds of fetal heart not distinct; she is not complaining of pain. Next day, about noon, I saw her at the hospital, and an examination of the cervix confirmed the statement made concerning it by Dr. Scott, the resident physician, as previously mentioned.

I noticed that two fingers could be easily passed through the then dilating cervix, and that she was having slight intermitting pains. Dr. Scott then, to decide whether any change had occurred since his examination of the previous day, again introduced his finger and said he thought she was in labor and that some dilatation had occurred in the interim. I decided to give the uterus opportunity to free itself, and, that failing, at the expiration of a reasonable time to assist in whatever way that seemed indicated.

The pains continued feeble and she was kept in bed. About 5 o'clock that evening profound and sudden collapse occurred and I was hurriedly sent for. Dr. Scott, suspicioning the cause, hastily examined her and found a large rupture of the uterus connecting with the vagina. In this opening was presenting the fetal head, and through it could be felt a coil of intestines. Wishing to deliver her before death, he quickly applied the forceps to the head in the rent and delivered her quickly of a macerated, premature fetus, and immediately afterward removed through the same opening in the uterus a degenerated placenta.

The patient died about three minutes after removal of the placenta. About eighteen hours after death an autopsy was performed. The tear in the uterus, which Dr. Scott had thought to be to the left and anterior, was found in the posterior part of the left side of the cervix, and extended from about an inch from the cervical opening upward four or five inches. Connecting with this opening was a tear through the roof of the vagina behind the uterus, extending backward and to the right about two inches. The uterine wall was very soft and flabby, and its inner surface covered with a grayish, grumous material having no particularly offensive odor. No evidence of hemorrhage was found. The os uteri was very little dilated and was surrounded by a thin, circular band of cicatricial tissue. Five large lumbricoid worms were removed from the intestines. Nothing further of note was found.

On the 21st of September last Dr. R. M. Slaughter, of Theological Seminary, Virginia, sent the following sketch of the patient's history in response to my inquiry concerning it: "In June, 1889, the patient, Mary D., was operated on at the Alexandria Infirmary by myself, kindly assisted by Drs. Smith and Purvis, Dr. Jones giving the anesthetic, for a supposed carcinoma of the cervix. This diagnosis was based upon the symptoms of severe and constant hemorrhage, the enlargement, hardness, and ulceration of the cervix, and the general cachexia. Subsequent microscopic examination shows the neoplasm to have been a cylindrical, columnar-celled carcinoma. The operation consisted in the excision of the cervix, as high up as possible, with the scissors, and the thorough cauterization of the stump with the electro-cautery. Her recovery was without incident and unretarded, and, so far as I know, there was no return of the cancer. She did not know her own age, and at the time of the operation had the appearance of being at least 45 years old. From this and the fact of her having grown children, I was led to believe that such was about her age. I next saw her in May, 1891, when she had an abortion at three months. I then found that the degree of dilatability of the os was very limited, and it was with difficulty that the fetus was expelled. The placenta was removed with the curette. I was not aware of the fact that she had again become pregnant until the pregnancy had progressed to about the seventh month. I then advised her to go to the hospital as full term approached, for I was sure her labor would be a dangerous

and complicated one, and one in which delivery would probably be only accomplished successfully by resort to section."

Labor evidently was going on during the day of her death, and the cervix dilating led me to believe it would yield to the pressure sufficiently for the termination of labor. I then knew nothing of the important previous history since kindly furnished me by Dr. Slaughter. It was noteworthy that no hemorrhage followed the extensive rupture. Evidently no large blood vessels were in the line of the tear. The patient clearly died of shock.

If we can exclude from causative relation the degenerated contents of the uterus, we have left the following: a uterus that had undergone seven labors at term, all of which were normal, and an abortion at three months; that had been the seat of cancer three years before, and that contained now about its outlet a dense cicatrix that, Dr. Slaughter says, could hardly be sufficiently dilated to allow the passage of a three months' fetus, and that he was morally certain would not allow a fetus at full term to pass. We have this uterus contracting—not vigorously, because of its weakness—and a cervix not yielding to the influence usually producing dilatation. As a result the uterine wall simply gave way from the effect of these contractions, which seemed so slight, but must have been strong, considering the weakened condition of the uterine walls.

Now, how large a part in causing the rupture was played by the cicatrix in the cervix following its amputation? Would the uterus have ruptured had no cicatrix been present? I think not. The experience of Dr. Slaughter and myself leads me to think the cicatrix was the greatest exciting cause of the rupture. This cicatrix was caused by the amputation and application of the cautery for the removal of cancer, and is to be expected after such treatment in every case. If such scars follow the operation mentioned, then should women who have not reached the menopause, and who have demonstrated their liability to further labors by already having a number of children, be subjected to it? I believe they should not, unless future progeny be greatly desired by them, and they, realizing the danger of it, elect that operation. Dr. Slaughter would have done a supravaginal amputation or hysterectomy, had he not thought she had reached the menopause. When it can be done with a degree of certainty of complete removal of malignant disease, I

am in favor of hysterectomy, either vaginal or abdominal, for cancer of the cervix, as compared to the operation that was done in the case under consideration, and is so often done nowadays. I hope the discussion will bring out the views on this subject of the different members present. Perhaps my trusting to Nature was wrong, and that an early resort to hysterectomy would have been the wiser course to pursue; but having great faith in Dame Nature, I was slow to believe that such an operation should be resorted to. Division of the wide cervical cicatrix would have been very dangerous, and I consequently deferred interference. Certain it is that had a successful hysterectomy been done, instead of an amputation, the poor woman would have had no subsequent pregnancy, and would not, therefore, have been exposed to the condition which caused her death. Dr. Slaughter was misled by the circumstances that indicated her age to be at least 45 years, and I by the insidious labor and by the apparent competency of the cervix to perform its function during labor.

916 McPHERSON SQUARE.

A CASE OF LUMBAR AND INGUINAL HERNIA OF THE RIGHT SIDE.

BY

ALFRED BLAND TUCKER, M.D.,
New York.

(With one illustration.)

MRS. D., age 35, United States, married, housewife, consulted me in the fall of 1891 for a large tumor. Her history is as follows:

She has been married twelve years; is the mother of four children, the youngest being 6 years old. Seven years ago she was operated upon for a tumor of the abdominal walls. Shortly after leaving the hospital she became pregnant, and while carrying this child she noticed an enlargement in her right side between the lower border of the ribs and the crest of the ilium. She consulted a physician, and he applied a bandage for

her, but it did not seem to do her any good. After the birth of her child, as the lump seemed to be growing, she consulted another physician, who first put a blister over it, and then, as it did not disappear, he painted it with iodine without benefit. She then concluded not to do anything more; but as it had grown to such proportions and its weight had become so great that life had become a burden to her, she begged that something might be done to alleviate her sufferings, saying she would be willing to undergo anything to get rid of it. She was nursing a friend, and I had no opportunity to examine her except while standing. I found a mass, weighing about forty pounds, extending from the umbilicus outward, corresponding to a line drawn from the axilla to the middle of the crest of the ilium, and reaching to within three inches of the right knee. This mass was irregular in form, having a number of teat-like protuberances, soft, though not fluctuating, in consistence. Upon palpation it had no tympanitic, but rather a flat or dull resonance. The whole mass was freely movable with its covering, and could be lifted up and laid on the abdomen. She managed to move around and do all her own work, and hid it by wearing a shawl, but it gave her a sidling shuffle when walking. She gave birth to her child at full time. She did not complain of much disturbance of digestion, excepting constipation. One of the protuberances had suppurated several times, discharging a thin, purulent matter. For some months I lost sight of her, but in February, 1892, she came to my class at the Northwestern Dispensary and said she was ready and anxious for an operation. I sent her to St. Elizabeth's to be gotten ready. I am free to confess that I did not know the exact nature of the tumor, though when I first saw it I was impressed with the idea that it must contain intestines, but, not getting a tympanitic resonance, I could not be certain, neither could two of my colleagues; and it was not until the day before her operation, after her bowels had been thoroughly cleansed, when Dr. Wm. Pryor examined her with me, on her back, that we found part of the mass could be returned to the abdominal cavity and a clearly tympanitic resonance was gotten upon percussion. To Dr. Pryor is due the credit of first making the diagnosis of hernia. The drawing shows the general appearance of the tumor as the patient was standing, but does not show the protuberances.

February 25th: After etherizing the patient I put her in

Trendelenburg's posture, thoroughly disinfected the whole tumor, and made my incision, starting midway between the umbilicus and ilium and about two inches below the level of the umbilicus, going very carefully until I had gotten into the sac, when, using my fingers as a guide, I carried my incision, with the scissors, downward and outward until I got to its lower border. In each of the protuberances I found a mass of omentum



adherent to the inner wall of the sac, which was covered with peritoneum. These masses I ligated, some being so thick that they required several ligatures, and cut them free from the wall of the sac. I found, as I cut the portions of the omentum free, that part of the intestines could be returned to the abdominal cavity through the inner ring of the inguinal canal, but the others could not. In continuing I came to a mass much larger and thicker than the rest, and which proved to be the stomach. I also found the caput coli. These could only be returned to

the abdominal cavity through an opening just below the free border of the ribs and running down to, and along the crest of, the ilium; this was fully six or seven inches in length and ran downward toward the anterior superior spine of the ilium; it easily admitted the whole hand, and I could readily feel the free border of the liver a finger's length above the superior border of the opening. I replaced the organs as carefully and as nearly as possible in their normal position, and then introduced my hand to find if there was any growth which could cause the displacement. Finding none, I began, after cutting away the sac, which measured twelve by eight inches, to close the wound. I first brought the edges of the peritoneum together with silk sutures; I then dissected the inner or peritoneal lining of one of the protuberances which lay just below the opening, and brought that over the first layer of sutures to act as a fascia; then I put in a few strands of silkworm gut as a drain and brought the skin together with silver wire. The patient was suffering from shock, and I did not feel justified in operating upon the inguinal hernia at the internal ring, so I applied the dressing and got her to bed as quickly as possible. Her pulse after the operation was 150 per minute, and she was suffering from the effects of shock so much that I gave her a hypodermic of strychnine sulphate, one-hundredth grain, and repeated it in two hours. The operation lasted one hour and three-quarters. At 8 P.M. her pulse had come down to 120 per minute and she was suffering considerably from dyspnea; so I lowered the foot of her bed, which I had raised to relieve shock, and raised the head of the bed some. The next day there was some flatus, so I ordered a rectal tube and two compound cathartic friable pills, to be repeated in two hours. She passed a good deal of gas, but no fecal matter, so that night I ordered

R Glycerini,

Olei olivæ āā Os.

Spiritus terebinthinæ ʒ ss. ♀

as an enema, which brought quite a good movement. She made an uninterrupted recovery, her temperature never going above 100°, the wound healed by primary union, and in two weeks I removed the silver-wire sutures. At the end of three weeks she was up, and in four weeks she went home feeling well. I had made an abdominal bandage with a soft pad running along

the line of incision, and had a hard-rubber saucer to fit over the rupture at the internal ring of the inguinal canal.

The points of interest are : First, that there was a double hernia, the inguinal and the rarer lumbar. Second, the contents of the sac—all of the small intestines, caput coli, part of ascending colon, and the stomach. Third, the great displacement of the stomach from the epigastrium to a point below the crest of the ilium, and out of the abdominal cavity. Fourth, the great elongation of the esophagus necessary to reach that point. Fifth, that there should not have been more disturbance of the digestive organs by the displacement. Sixth, the method employed in making the fascia and thus giving strength. The literature of lumbar hernia does not, as far as I can find, give a single case of the escape of the stomach, or more than a coil or two of the small intestine. The engraving shows very distinctly the two points of exit.

I am indebted to Drs. G. T. Harrison, Goffe, Pryor, and Noll for their valuable assistance.

258 WEST 22D STREET.

MALIGNANT NEOPLASM OF A LUMBAR LYMPHATIC GLAND. SIMULATING AN OVARIAN CYSTOMA.

BY

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UPON opening the abdominal cavity a surgeon must be prepared to meet with many surprises, for the difficulties of correct diagnosis are so great that occasionally nothing but an exploratory incision will enable one to decide the origin of a tumor, and it may chance that a case which seemed quite simple will prove very complicated. Such a one is the following, whose unusual character makes it seem worthy of publication :

Miss B., 62 years old, American, unmarried. Menstruation not established until the age of 20; flow always scanty. Menopause occurred at 50. Family history good, with exception that two aunts died of mammary cancer.

Personal History.—Patient was never very strong, but had no-

particular illness. Ten years ago fell on the steps and injured her left side. Five years ago noticed a lump the size of a hen's egg in left groin. Gave no particular attention to it until this last year, when it gradually increased to size of a child's head and caused considerable soreness in lower part of abdomen. The soreness finally became pain of a sharp, darting character and increasing severity, also extending down the left leg. There has been a distinct loss of flesh during the last year.

General Appearance.—Medium height; gray hair; marked *arcus senilis*; worn expression of countenance; complexion pale. Heart and lungs apparently in good condition. Indigestion and constipation of late. Liver dulness not increased.

Urinalysis.—Amount in twenty-four hours, about three pints; color, amber; reaction, slightly acid; specific gravity, 1.020; no albumin or sugar; microscopically, nothing of note.

In the left side of abdomen can be seen a prominent tumor, which extends from the pelvis to just below the ribs, and to a little beyond the median line of the abdomen. It has the consistence of a tense cyst; is quite movable up and down, but less so from side to side. There is dulness over the tumor, but elsewhere the abdomen is tympanitic.

Pelvic Examination.—Vagina very small; uterus atrophied; ovaries could not be distinguished. The diagnosis appeared to be an ovarian cyst with a long pedicle.

Operation performed on March 8th, 1891. Incision in median line midway between umbilicus and symphysis. On opening the peritoneum the tumor at once came into view. There were no adhesions to the anterior abdominal wall. The uterus and its appendages were found in an atrophied condition, and it was evident that the tumor did not originate in the pelvis. It was noticed that the descending colon had been pushed by the tumor a little beyond the median line and formed the right boundary of the same, so that it was impossible to penetrate beneath the tumor from the left side. This could only be accomplished by passing the hand to the right of the descending colon, when one could feel the smooth under surface of the cyst superposed upon the posterior parietal peritoneum. By careful palpation both kidneys could be made out, normal in size, position, and covering.

The tumor was evidently retroperitoneal with fluid contents. Enucleation was attempted by an incision on its anterior aspect,

but this was found impossible, as the cyst cavity was immediately entered, giving exit to about a quart of dark, reddish-brown fluid of the consistence of melted caramel. There was no capsule proper, the cyst walls being formed in front by the descending meso-colon, and behind by a reflected portion of the parietal peritoneum.

After thorough irrigation of the cyst with boiled water its edges were sewed into the lower angle of the abdominal wound and a glass drainage tube inserted. The abdominal cavity was also freely flushed with boiled water, and the wound closed with six silkworm-gut sutures and dressed antiseptically, the drainage tube being protected by a rubber dam.

A portion of the fluid removed was sent to Dr. W. W. Gannett for pathological examination, and the following is his report: "A dark-brown fluid of the consistence of very thick cream. By chemical examination it is found to be free from mucin. Microscopically it is made up of great numbers of free nuclei, leucocytes; large fatty and granular corpuscles; very numerous large polymorphous cells, singly and in large and small clumps; degenerated blood, blood pigment, and free granular matter. The fluid comes from a new growth in a state of softening. Of the retroperitoneal growths on the left side, those starting from the kidney or the surrounding tissue are the common ones. It seems to me that this must have such an origin. At any rate, it must have arisen in that neighborhood. Of the new growths, the diagnosis lies, to my mind, between a glandular adeno-cystoma, a cancer, and a sarcoma. On the above evidence I should be unwilling to express an opinion as to which it was. It seems to me that a very guarded prognosis should be given."

After-treatment.—Patient rallied well from the operation. The pulse and temperature remained about normal, and the general condition was good. The drainage tube was dressed every four hours at first, and after two days the cyst cavity was irrigated twice daily with a solution of pyoktanin. • On the twelfth day the glass tube had to be exchanged for a much smaller one. The stitches were removed on the seventh day, the wound having healed by first intention. Patient sat up on and after the sixteenth day. There was no special odor to the discharge from the drainage tube until the eighteenth day, when there was but a small cavity remaining. Patient returned to

her home in Holyoke at the end of three weeks, and thereafter was under the care of Dr. Julia Patten, to whom I am indebted for further notes of the case. Patient continued to gain in strength for a time, and spent several hours daily out-of-doors. After about two months she began to fail again and there was an occasional rise of temperature. Pulse varied from normal to 120. There was at no time any ascites. The sinus never healed entirely, and the discharge became thicker. There was an occasional hemorrhage of three to four ounces, and at the last an almost continuous oozing of blood. Urine always remained normal. The skin took on a yellowish hue; diarrhea now alternated with constipation; food was not assimilated, but patient gradually failed, and died on August 7th, about five months after the operation.

A partial autopsy was made by me, assisted by Dr. Patten, on August 8th, 1891. Only the abdomen was examined. Cicatrix of the former wound was perfect except at site of sinus. There were some loose adhesions between the tumor and anterior abdominal wall, which were easily torn through with the finger. The omentum was partially spread out over the tumor and lightly adherent to it. It was studded with little yellow nodules of cancerous deposit. The descending colon lay in the median line, and the relations of the tumor were found to be the same as at the operation. The interior of the cyst cavity had smooth walls, with the exception of two papillematous growths, one containing a large convoluted blood vessel whose wall was eroded at one point and was evidently the source of the hemorrhages which had occurred during life. There was a small quantity of fluid and detritus present, the same quality as before. Pushing aside the tumor, it could plainly be seen that there was no connection between it and the left kidney; these were separated from each other by the posterior parietal peritoneum, which at this part was perfectly normal in appearance. The kidneys were embedded in the usual amount of fat and were not macroscopically diseased. The same may be said of stomach, pancreas, and spleen. The liver contained numerous typical cancerous nodules and had a yellowish tinge, but was not materially enlarged.

THE RÔLE OF THE PESSARY IN THE CURE OF
RETRODISPLACEMENT OF THE UTERUS.¹

BY

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IN a paper on "Shortening of the Sacro-uterine Ligaments," read before the Cincinnati Medical Society, February 4th, 1890, I made the assertion that it was my belief that backward displacements of the uterus were cured by the pessary through the induction of an inflammatory state in these ligaments. It is the purpose of this paper to elicit the opinion of the members on this subject.

Let us first review the pathological and etiological features and the direction of therapeutic efforts in retroflexion and version.

Taking up the study of the pathological conditions, we find many different views presented. By some, all of the tissues having a bearing upon the supporting power of the genital tract were thought to be involved; others ascribed it to a faulty state of one set of ligaments, and others again to another set, whereas A. Martin presented an entirely different view. It was principally the older writers who ascribed the displacement to all of the tissues contributing to the support of the contents of the pelvis. Then, for a time, the round ligaments were the tissues at fault, and many were the operations devised to remedy this condition. The first to attack them was Alquié, of Montpellier, who presented a paper on this subject before the Academy of Medicine in 1840; and next we heard of Alexander and Adams, who did the operation of shortening the ligaments within two months of one another and unknown to each other. Thereafter similar intraperitoneal efforts, with which the names of Wylie, Emil Bode, Polk, Dudley, and Mann are most prominently associated, were undertaken for the same purpose.

Now most of us look to the sacro-uterine ligaments, long ago

¹ Read before the Obstetrical Society of Cincinnati, November 23d, 1892.

referred to by Schultze and Küstner, as the agents at fault, and are devising means to overcome the relaxation of these bands. Kelly, Byford, and others employed their efforts in this direction. Mention of the many other purely mechanical methods, as abdominal hysteropexy, pelvic colpo-hysteropexy, Schüeking's method, etc., do not come within the scope of this paper.

Different from those views heretofore stated is the one of A. Martin, who considered that defective retrograde metamorphosis played a conspicuous part in the causation of retroflexion when the placental site was situated on the anterior wall. The posterior wall being thinner and weaker, flexion took place in that direction. He claims to cure these cases through curettement without the intervention of any other agent.

Assuming relaxation of the sacro-uterine ligaments to be the main agent in the establishment of posterior displacement, the question then arises, what pathological feature determines this state? Schultze holds it to be due to a parametritis posterior, a view also held by Harrison. I am inclined to offer subinvolution of these folds, as being but part of uterine subinvolution, as an additional explanation for this state. Bandl and Savage have called our attention to the continuation of the uterine platysma into the posterior bands. The beneficial effects obtained by Thure Brandt's massage treatment might probably be ascribed to this fact.

Coming now to the use of the pessary for the relief and cure of this condition, we again find a gradual evolution of the true explanation regarding the action of this instrument. I am fully aware that its use is condemned by many, but in this I share the opinion of Fritsch that it requires more skill to select a suitable pessary and properly supervise its application than it does to perform any of the many operations devised to overcome this fault. To apply a pessary for retroflexion or version with coexisting peri-uterine inflammation of whatever character is positive malpractice. The disease of the appendages must first be reduced, the organs rendered painless to the touch, and the uterus become freely movable before recourse to the pessary may be taken. Months may be occupied in accomplishing this, but if the opponents of the pessary would only exercise the necessary perseverance they would be won over to its use.

Hodge, the first to give us our present conception of a pessary, considered its action to be that of a lever, the pressure being

exercised directly upon the uterus. Then the principle recently enunciated by Harrison, though held by many before him, was adopted—as expressed by Harrison: “The object sought to be obtained by the pessary, however, is to compel the vaginal portion to remain permanently in a position near the posterior pelvic wall, or, in other words, to fix it behind; and this is accomplished by the action of the posterior bow, which pushes the posterior fornix vaginae upward and backward, and by its traction tends to keep the cervix behind.” Those who hold this view must be of the opinion that a cure is brought about in the following manner: The fundus being held forward and the cervix backward, the ligaments associated with these portions of the uterus get an opportunity to contract, and, by giving them time enough, finally hold the organ in a normal position. This opinion I find held by all authors but A. Martin, who ascribes the action of the pessary to a pressure upon, and consequent reduplication of, the sacro-uterine ligaments—the view I entertain. But he stops at this, offering no explanation of the influence exercised by the instrument upon the ligaments.

We know that the uterus is almost constantly changing its posture, due to the respiratory acts, locomotion, and the different states of the bladder and rectum. In this connection I desire to call attention to the following expression of Pozzi: “Every time that the bladder empties itself the uterus is placed physiologically in a temporary position of retroversion”—a view at variance with all other accepted opinions. As a result of these changes in posture of the uterus the sacro-uterine ligaments are subjected to constant friction, which induces various degrees of inflammatory changes, depending upon the amount of pressure and friction, and the susceptibility of the tissues, and it is right here where the difficulty is encountered in the selection of a suitable pessary. How often have we been called in to see a patient, who has worn a pessary but a short time, complaining of severe pain in her back and rectum! Examination reveals a swelling above the posterior fornix, and great hyperesthesia, or, in other words, an acute inflammation in the posterior folds. That was a poorly fitted pessary. Again, we are summoned to a patient who has worn a pessary for four or five months, and find her suffering in a similar manner, but to a milder extent. Here, upon examination, we find less evidence of inflammation. This woman has worn her pessary too long a time. What, then,

should be our aim? It should be, in the first place, not to apply a pessary until our patient is in a condition to wear one: next, to select a suitable instrument; and, finally, not to allow her to wear it too long. We want neither an acute nor a subacute inflammation, for, as Harrison and Schultze have observed, these conditions are followed by relaxation. During the progress of an acute or subacute inflammation the tissues are edematous and infiltrated with inflammatory elements, the disappearance of which is followed by both loss of tissue and a weakness of what remains. Different, though, are the conditions when a chronic inflammation is induced, for then we have developing a hyperplasia of the tissues which augments their strength. This, then, is the manner in which I claim a cure of retrodisplacements is effected.

How long a woman must wear a pessary will therefore depend upon the behavior of the sacro-uterine ligaments. If we rely upon the directions given by Pozzi we will go wrong nine times out of ten. He gives us the following advice: "If the patient takes a douche twice a day the pessary may be left in place for two or three months; at the end of this time it should be withdrawn and careful account taken of the position of the uterus; if it remains in the position of anteversion the pessary is given up, otherwise its use must be continued." The busy gynecologist will meet with a contrary experience almost daily, but if he will take as his guide the thickness and tension of the posterior folds he will rarely make a mistake in dispensing with the use of the pessary.

There are some cases of posterior displacement that can never be cured, and I have associated them with one of two classes. First, there are those, although the posterior vaginal fornix is well encroached upon, in which the fundus is constantly tipping back over the posterior bow of the pessary. In these cases we find an unstable condition of the fundus—that is, there is a true joint at the junction of the cervix and body, probably due to atrophy. The second class of cases is that in which there has been such atrophy in the folds of Douglas that restitution is out of the question, and we must be satisfied with obtaining only the pure and simple mechanical effects of the pessary.

TWO YEARS' EXPERIENCE WITH PELVIC MASSAGE IN GYNECOLOGICAL CASES, WITH REPORTS OF CASES.¹

BY

HIRAM N. VINEBERG, M.D.,
New York.

(With twenty-nine illustrations.)

(Concluded.)

CASE XI. *Left Salpingitis and Oöphoritis following a Suppurative Exudation the Result of an Induced Abortion.*—A. G., æt. 19 years, single, was first seen by me on August 9th, 1892. She was then suffering from high fever and an extensive pelvic exudation crowding against the rectum posteriorly and filling the lower part of the pelvic cavity. This condition was the sequence of an attempt to bring on an abortion at the second month by a doctor in the country, and the subsequent efforts of

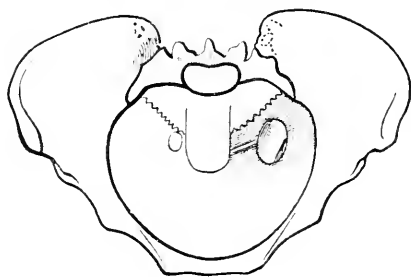


FIG. 13.

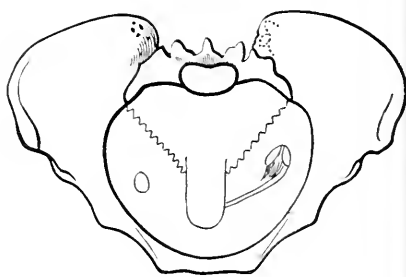


FIG. 14.

a midwife in the city to remove the products of gestation, which she said she had successfully achieved. As any operative interference was stoutly objected to by the patient and her mother, I had to content myself with applying narcotics, hot douches, fomentations, etc. Eight days later the patient passed a large quantity of pus per rectum, and the pelvic exudation underwent a considerable reduction in size.

August 22d: Patient walked to my office to-day. Says she is quite free from pain. Examination shows that the vaginal

¹ Read before the Section on Obstetrics and Gynecology of the Academy of Medicine, November 25th, 1892.

vault is tense and unyielding, and that there is still a considerable exudation behind and to the left of the uterus. The exudation seems to be continuous with the bony structure of the pelvis.

September 12th: Has had vagino-abdominal galvanism thrice weekly since above note. Exudation has shrunk to a mere thickening in Douglas' sac and left parametrium. Patient feels quite well and has not an ache or a pain.

October 8th: Returned to-day, saying that for the past few days has had pain in the left iliac region. On examination uterus was found retrodisplaced and restricted in its movements by bands passing to the sacrum. There is a fulness felt to the left of the uterus, in the centre of which an oblong mass can be outlined, probably the left tube and ovary. The right ovary is adherent to the side of the uterus at the junction of the cervix with the body (Fig. 13). Patient was now subjected to daily pelvic massage.

October 22d: The pain in the left iliac region disappeared after the third *séance*. The uterus now is freely movable. The left parametrium seems to be free from any thickening, and the left ovary can be readily made out. It is perhaps somewhat larger than normal. Right ovary lies about midway between uterus and side of pelvis (Fig. 14).

CASE XII. *Prolapsus of the Uterus of the First Degree*.—L. D., æt. 30 years, married twelve years, came under my care August 12th, 1892. Has one child 11 years of age. Menstruation set in at the age of 17; was scanty, and recurred only every five or six weeks. It was quite painless. Her labor was easy and her recovery good. She did not menstruate until her baby was 19 months old, and now for the first time the flow was attended with considerable bearing-down pain, which continued during the menstrual flow. From this on the flow grew more scanty, lasting only a day or thirty-six hours. Nervous symptoms common to the climacteric began to manifest themselves. There was a fulness in the head, flashes of heat, flushing of the face, etc. She was treated for a time with galvanism over both ovaries, without, however, increasing her flow or relieving her symptoms. In addition she suffered from a feeling of weight over the hypogastrium and from a frequent desire to urinate. For the latter symptoms two operations (nature of which the patient did not know) were done at different times at the Bellevue Hospital. No benefit resulted from these operations.

The patient is a robust, healthy-looking woman, with thick but lax abdominal walls. The uterus is small, anteflexed, lying low down in the pelvis, with the fundus resting on the bladder; it is freely movable. In the erect position the cervix is felt an inch above the vaginal entrance (Fig. 15). The appendages are in fairly good condition, the left ovary being somewhat large but freely movable. In addition to intra-uterine negative galvanism to increase the menstrual flow, the patient was subjected twice weekly to pelvic massage. This consisted chiefly in elevating the uterus as high as possible with the two fingers in the vagina, ending with a vibratory movement.



FIG. 15.



FIG. 16.

October 7th: The symptoms of weight over the hypogastrium and the desire to urinate frequently have disappeared. The nervous symptoms still persist, though in a diminished degree. The uterus lies at least two inches higher up in the pelvis (Fig. 16).

November 12th: Has just passed a period. The flow was more abundant (lasting from three to four days) than it has been for years. Nervous symptoms all gone.

CASE XIII. *Retroflexion; Chronic Metritis, with Softening of Isthmus; Prolapsus of Right Ovary; Thickening of Left Broad Ligament.*—Mrs. B. consulted me first on August 15th, 1892. She was 28 years of age, married at the age of 18, and had two children, last child 6½ years of age. Three years ago

she induced an abortion at the sixth week of gestation. She dates her symptoms from the birth of her last child. These consist of pain in both iliac regions, severe backache, inability to walk for any distance or to stand for any length of time, inability to do her housework, leucorrhea, and frequent micturition. Last winter, while wearing a pessary, she was seized with acute pain in the pelvis and had to remain in bed for three weeks. She had been treated by various specialists, some of whom were of high standing, for the past six years. Two years ago a well-known gynecologist carried out Schultze's method of redressing the uterus under deep narcosis. This was said to be successful,



FIG. 17.

but the patient says her symptoms were worse after the operation. No method of treatment, she asserts, has given her much relief, but she always felt better while medicated tampons were placed in the vagina.

The patient is of spare build, rather anemic, and poorly nourished. The digestion is poor and her bowels are constipated most of the time. On examination the fundus of the uterus, considerably enlarged, globular in form, is found lying in the hollow of the sacrum and is moderately retroflexed. The cervix points toward the pubes and is separated from the fundus by a thinned portion simulating Hegar's sign. The fundus is widely adherent to the sacrum, but can be brought forward as far as the promontory. The right ovary, the size of a walnut, lies in

Douglas' space at the right side of the uterus, and is extremely tender. There is considerable fulness and thickening on the left side, and neither tube nor ovary can be detected (Figs. 17 and 18).

August 22d: Has had four *séances* of pelvic massage. The uterus can be anteverted, but not without some difficulty. Right ovary less tender and somewhat smaller.

September 1st: Uterus can be easily anteverted, but always found in retroversion at the next visit. Patient's symptoms vary. At times she feels better, at other times has the same complaints to make. The thickening on the left side has disappeared in a great measure, and the left tube, the size of a goose quill, can be readily palpated. The left ovary is felt next to the left pelvic wall, pretty far forward, and is rather firmly fixed.

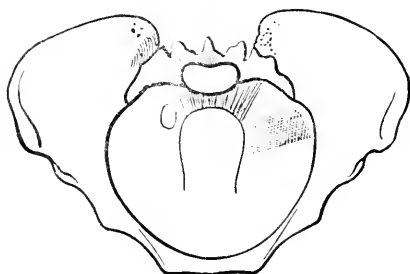


FIG. 18.

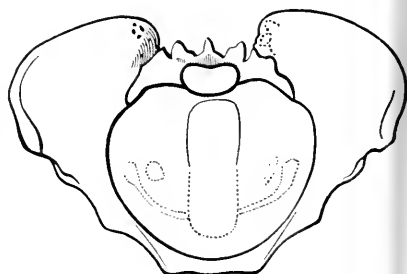


FIG. 19.

September 10th: The uterus still persists in reverting to its faulty position. The left ovary is now freely movable. The right ovary is very much smaller in size and can be freely palpated without giving pain (Fig. 19).

Patient declines to continue with treatment, partly on account of the distance she has to come (living on the outskirts of Brooklyn), but chiefly on account of pecuniary reasons. She thinks, also, that she has not made sufficient progress, for on doing her household work, which she was unable to do before, many of her former symptoms return. On the whole, she confesses to be considerably improved.

CASE XIV. *Retroversion; Adhesion of Cervix anteriorly; Prolapsus of Right Ovary; Fixation of Left Ovary to Pelvic Wall.*—M. K., æt. 23, single, came to me for treatment August 23th, 1892. She menstruated at the age of 14, and for the first two or three years irregularly, but the flow was abundant from

the outset and was accompanied by considerable pain. The pain would come on the day before the flow and continue during the whole period.

About two and one-half years ago, on lifting a heavy weight, she was seized with acute, agonizing pain in the left side of the pelvis, which lasted for several hours. Ever since that time she has suffered from pain in the left iliac region, backache, frequent micturition, leucorrhœa, and inability to perform active exercise. Walking only a short distance fatigued her and caused an exacerbation of the backache and the pain in the left side. Had been treated for over eighteen months by hot douches, painting of the vaginal vault with iodine, and packing the vagina with glycerin tampons. In spite of persistent treatment her symptoms remained about the same.

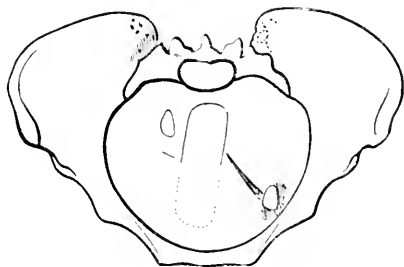


FIG. 20.

On examination the uterus was found lying in complete retroversion, with considerable adhesions between the cervix and anterior abdominal wall. There were little or no adhesions posteriorly, and the fundus could, without much difficulty, be anteverted, in which position the space between cervix and anterior vaginal wall was very shallow and tense. The right ovary was found low down in Douglas' space and slightly adherent. The left ovary was firmly fixed to the left pelvic wall, not far from the symphysis pubis. A firm, stout cord passed from the side of the uterus to the left ovary (Fig. 20).

Patient was subjected to pelvic massage thrice weekly, and an ichthyol tampon was placed behind the replaced uterus after each *séance*.

September 9th: Period has set in *without the slightest pain*. Has been quite free from pain for the past four days.

October 3d: Left ovary freed from its adhesions.

October 18th: Menses appeared yesterday without any pain. Excepting an occasional stitch in the left side, she has been quite free from pain. Takes long walks, and watched every parade during the Columbus celebration without unusual fatigue.

November 8th: No recurrence of former symptoms. Fundus of uterus lies midway between the promontory and the symphysis pubis. Uterus can be moved freely in all directions. Cervix points in the direction of the vaginal outlet. Left ovary felt in about the normal position, and is freely movable. Right ovary lies high up in the pelvis, but posteriorly to the centre of the pelvis (Fig. 21).

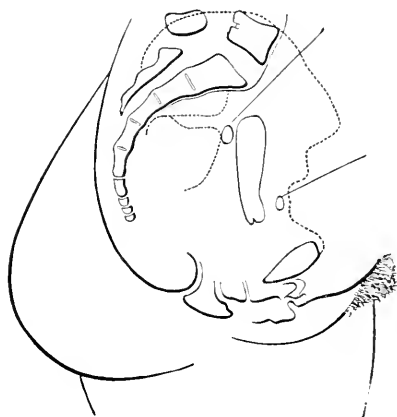


FIG. 21.

CASE XV. *Retroversion with Posterior and Anterior Adhesions; General Perimetritis; Fixation of Left Ovary to Pelvic Wall.*—A. B., æt. 40 years, married twelve years, came under my care August 8th, 1892. She had three children, last child four years ago. Had one miscarriage at the third month seven years ago. Dates her trouble to the birth of the last child. She has severe pain all over the pelvis, but it is most constant and pronounced in the right iliac region. Has constant backache. Her general health has suffered, and she has lost considerable in weight. She has been going to doctors and dispensaries for over three years, but has received no relief. She is a small, thin, wiry-looking woman. Her abdomen is moderately lax; some displacement of the right kidney is detected. The uterus is retroverted. The fundus is large and globular, and lies in the

hollow of the sacrum; it is moderately adherent. The cervix points to the pubes and is slightly adherent to the anterior abdominal wall. There is considerable thickening to the right of the uterus, making it difficult to detect either right ovary or tube. A similar condition exists on the left side, but the left ovary can be felt fixed to the side of the pelvis (Fig. 22).

August 20th: Has had daily pelvic massage. Patient quite free from pain. Little or no thickening now on either side of the uterus. Left ovary in normal position. Right ovary in Douglas' space, to the right of the uterus. The uterus can be easily anteverted, but is usually found in retroversion at the next *séance*.

October 24th: Excepting for an occasional pain in the right groin, patient has remained free from pain. She is feeling very much improved in every way. Right ovary now lies well for-

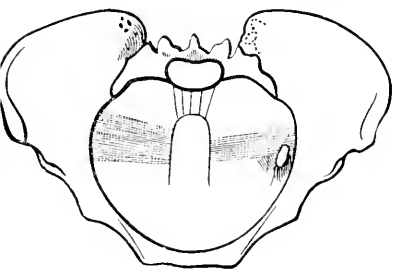


FIG. 22.

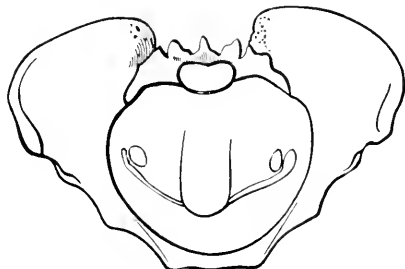


FIG. 23.

ward and high up in the pelvis. No thickening on either side of the uterus. The uterus still has the tendency to fall backward (Fig. 23). Introduced a Smith pessary.

October 25th: Fundus lying over posterior bar of pessary. Adjusted a larger pessary.

October 28th: Uterus well retained. No pain whatever. Has no discomfort from pessary.

November 8th: Uterus held in good position by the pessary. Has just had period, which was painless, as was also the period before.

CASE XVI. *Retroflexion; Chronic Metritis with Softening of Isthmus; Prolapsus of Right Ovary; Fixation of Left Ovary to Psoas Muscle*.—K. S., æt. 39 years, married nineteen years, was first seen by me August 23d, 1892. She had four children, last child five years ago. Following the last labor she had fever, and pain in the pelvis, and was quite ill for a fort-

night. Ever since then has been a great sufferer from pain in the pelvis, dysmenorrhea, leucorrhea, severe backache, and a variety of nervous symptoms. Her digestion is poor; has eructations, flatulence, constipation, etc. Has been under steady treatment for the past three years. Visited one physician regularly for a year, but was no better at the end of the year than when she began. Another physician introduced a pessary, which almost drove her frantic with nervous irritability and a feeling of discomfort in the pelvis. Was advised to see a neurologist, but, believing her nervous irritability due to the pessary, she removed it and felt considerably relieved.

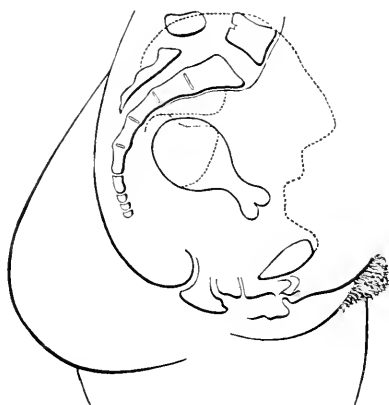


FIG. 24.

She is a thin, lightly-built woman, with a haggard expression and pale face. The uterus is retroflexed and somewhat adherent posteriorly. The fundus is large and globular in form, and is separated from the cervix by a thinned portion similar to that in Case XIII. Right ovary is the size of a walnut, and is prolapsed in Douglas' space, but is quite movable. Left ovary lies on the left psoas muscle and is firmly fixed (Figs. 24 and 25).

September 2d: Has had pelvic massage thrice weekly. The uterus is easily anteverted, and is kept in anteversion in the intervals by ichthyol tampons.

October 7th: Patient has been fairly regular in attendance. She has less pain, but is far from feeling well. Her general condition and nervousness remain unchanged. Locally there is marked improvement. The fundus is considerably smaller and

is easily brought forward. The right ovary is almost of normal size and lies higher in the pelvis, though still posteriorly to the central line. Left ovary is freely movable, is not sensitive, and lies midway between uterus and wall of the pelvis, the uterus being in anteversion (Fig. 26).

October 31st: Patient's symptoms continue about the same. Has profuse leucorrhœa. Advised curettage for the endometritis; I am of the opinion that this would benefit her very much, as her symptoms can no longer be dependent upon pelvic adhesions.

CASE XVII. *Firm Fixation of Uterus to Rectal Wall; an Irregular Mass attached to Fundus posteriorly.*—M. S., single, æt. 35, consulted me August 19th, 1892. Her illness began seven years ago with irregular menstruation, pain in the abdo-

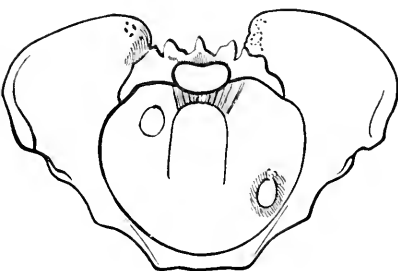


FIG. 25.

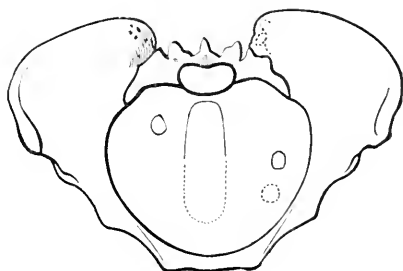


FIG. 26.

men and back, constipation, and general debility. After a year's treatment the menses became regular, but all her other symptoms have continued, with varying intensity, until the present time. She has been seen and treated by many of our best gynecologists; has been a faithful attendant, for a year at a time, at some of our best dispensaries; but the relief obtained was only slight and of but temporary duration. Five years ago she attended for a considerable time Dr. James B. Hunter's service at the New York Polyclinic. I was then Dr. Hunter's clinical assistant, and remember having seen and examined her on several occasions. She was looked upon as a hopeless case, for whom nothing could be done save placing medicated tampons in the vagina, more for the moral effect than for the hope of giving her any relief. At that time the uterus was lying against the rectum, and seemed to be cemented to it, so firm and close were the adhesions. For some weeks before coming to me last

August the pain in the pelvis had been unusually severe, and she was so run down on account of this that she had to give up her position as seamstress in a well-known establishment. She was very much depressed in consequence, and had but little courage to recommence treatment, which, as her past experience had taught her, did not offer bright prospects. I must confess that, after examining her, it was with a faint heart that I suggested a trial of pelvic massage. The uterus was found slightly enlarged, lying somewhat left of the median line, and in complete retroversion. The cervix, which was small and atrophied, pointed to the pubes. Lying closely on the sacrum, and firmly fixed to it, was an irregular mass, double the size of the normal



FIG. 27.

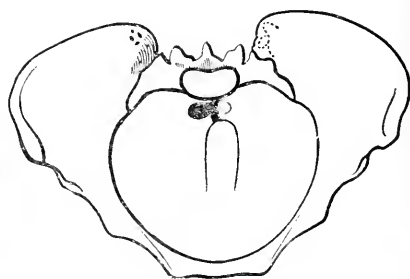


FIG. 28.

ovary, and not especially sensitive. This mass was attached to the fundus by a firm cord about one inch in length and of the thickness of the little finger. The abdominal walls were moderately thin and not at all rigid, so that the pelvic contents could be readily palpated. But I could find nothing in the pelvis other than that described above, and came to the conclusion that the mass and cord behind the fundus were the tubes and ovaries matted together (Figs. 27 and 28). A specialist of noted diagnostic skill, who had seen the patient a few months before, diagnosed a fibroid growth. His diagnosis may be the right one, and the inability to find the tubes and ovaries may be due to atrophy of these organs, as the patient has evidently passed into the climacteric for over a year, for her menstruation has been

scanty, occurring only once every six or eight weeks during that period.

September 2d : Has had daily pelvic massage, which has been done chiefly through the rectum and abdominal wall. The attempts at loosening the mass from the sacrum are attended with considerable pain, which, however, immediately passes off. Patient has been free from pain for two days. Has gone back to work. Says that she wakes up with a start several times during the night ; thinks this is due to the treatment.

September 15th : With a single exception of one day, patient has had no pain whatever since last note. The treatment has only been applied every other day. Is beginning to feel much



FIG. 29.

stronger, and no longer feels that unbearable fatigue at the end of the day's work which was her wont for several years.

September 22d : Succeeded to-day in getting uterus and attached mass as far forward as the promontory. Patient declares she has not felt as well for three years. Although the stretching of the adhesions and the lifting or elevating of the mass and the uterus are attended with acute pain, she is very faithful in her attendance and comes as often as told to.

October 15th : Got mass up beyond the promontory to-day. Patient continues free from pain and is gaining in strength and in flesh. During the past week the bowels have moved spontaneously on two different days ; prior to that had not a spontaneous action of the bowels for years—not, she thinks, since her

illness began seven years ago. She tells me also that now a smaller dose of a purgative has the desired effect.

November 13th : Since last note patient has had treatment only once a week. About a fortnight ago had some pain in the left groin and hip, but this was slight and passed away after a treatment. There is considerable mobility of the uterus and attached mass, and on one occasion I succeeded in bringing it almost as far as the pubes (Fig. 29). General condition is much improved. Save the two exceptions noted of about a day each, for two months and a half she has experienced entire freedom from pain and has not felt as well generally for over seven years.

The results obtained by Boldt and myself in this country and by numerous operators abroad I think justify the following conclusions :

1. Pelvic massage is a most valuable therapeutic measure in a large percentage of gynecological affections.

2. If properly applied, in the cases where it is indicated, it is a thoroughly safe procedure.

3. Coeliotomy and ventro-fixation for displacements of the uterus and for residua of inflammatory processes are unjustifiable until the case has first been subjected to a thorough trial with pelvic massage.

4. It must entirely replace Schultze's method, which is a dangerous procedure, limited in its application, and is not nearly as efficient in breaking up adhesions of long standing.

5. Of all methods and surgical procedures for the treatment of adherent and displaced pelvic organs it must rank as the *ideal* one, calling for no mutilation and for no fixation of organs. The latter is in itself pathological, as Nature has given these organs, especially the uterus, a wide range of mobility.

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RIGIDITY OF THE OS UTERI.¹

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THE opening-up of the cervix and os uteri in labor is accomplished by two forces—viz., the upward traction of the longitudinal uterine fibres and the wedge-like pressure of the presenting part, the operation of these forces being favored by softening of the cervix from the fluid infiltration of its tissues. Any disturbance in the harmonious working of this mechanism may give rise to a dystocia varying in degree from a mere prolongation of the labor with increased suffering for the parturient to that of the greatest danger to one or both lives.

Such disturbance may arise : 1. From alterations in the tissues of the cervix itself, which make it more resistant than normal. 2. From failure of the uterine fibres to contract with sufficient force—*i.e.*, *uterine inertia*. 3. The presenting part may be such as to be inefficient as a dilator. 4. There may be such disturbance of the nerve supply as to cause *reflex* or “spasmodic” resistance upon the part of the cervical fibres.

This last is usually found with some other complication of labor, such as the premature escape of the amniotic fluid, a malposition, some degree of pelvic contraction which prevents the presenting part pressing effectively upon the os, all conditions in which ineffective efforts exhaust the uterine muscle and from prolonged irritation excite spastic contraction of the circular cervical fibres. This may or may not be associated with tetanic contractions of the uterine body. It may also arise from too frequent examinations or from injudicious attempts at delivery. It may also be superadded to the so-called “organic rigidity.” Two classes of patients are especially liable to prolonged and painful first stage. One, the very young primipara, especially if she be one of the delicately organized and emotional girls of the upper walks of life, whose nervous system has been developed out of all proportion to her muscular. In these women there is

¹Read before the Obstetrical Society of Cincinnati, November 23d, 1892.

first a deficiency of muscular power, secondly an undeveloped os, thirdly a heightened irritability of the nerve centres, so that to them each contraction of the first stage may be an agony of pain. In these cases the os remains for a long time thin, rigid, and undilated. The other class are the old primiparæ. In them the tissues of the os have probably, as suggested by Lusk, undergone atrophic changes which render the organ less dilatable. Adhesion of the lips may in rare instances be so complete that the site of the os is discerned with difficulty. The adhesion may be associated with cicatricial deposits, or it may not. When not so associated the conglutination may be accounted for by the existence of cervical endometritis. "Schröder regards these atresias as always incomplete, and seeks their origin in the gradual induration of tissue immediately surrounding the os, resulting from old inflammatory processes."¹ These adhesions can usually be separated by the pressure of a blunt instrument or the finger, when dilatation may be completed by the natural forces. If it is not, Barnes' bags may be used.

Of atresia produced by new growths in the cervix, benign or malignant, it is not the purpose of this paper to treat. Suffice it to say that the improved results of Cesarean section make it indicated now more frequently than formerly. Rigidity may result from cicatrices following lacerations received in former labors. Often these cicatrices soften down and expand as the labor proceeds, and no interference is demanded. Lusk has reported a rare case of cicatricial atresia at the os internum. The woman was brought into the Emergency Hospital greatly exhausted, after having been in her second labor thirty hours. During the delay caused by her objections to submitting to Cesarean section, the uterus ruptured and the patient died. The first delivery had been instrumental, with a ruptured os. The upper part of the cervical canal was found on autopsy to be constricted by dense cicatricial tissue.² Cases have been reported of extreme prolongation of the first stage with great suffering in women previously subjected to trachelorrhaphy.³ An esteemed Fellow of this Society, Dr. Thaddens A. Reamy, has reported a number of cases of labor following trachelorrhaphy in which there was no unusual difficulty. In Dr. Fullerton's cases too much tissue

¹ Lusk, fourth ed., 1892, p. 539.

² New York Medical Journal, September 14th, 1889.

³ Anna M. Fullerton, N. Y. Jour. Gynec. and Obst., April, 1892.

was no doubt removed. Syphilitic deposits in the cervix have at times offered obstruction to dilatation.¹ The hope of the scar tissue finally yielding to pressure should not lead the accoucheur to delay interference until the woman becomes exhausted, since multiple small incisions are comparatively safe and will result in less extensive tears of the cervix than if the tearing is left to be made by the presenting part.

Many of the older works on obstetrics recognize the division of rigidity of the cervix into (1) "anatomical or mechanical" (Pajot), (2) "spasmodic rigidity," (3) "pathological rigidity."

"Anatomical rigidity" is thus defined by Charpentier: "True anatomical rigidity of the cervix has a peculiar feel, resembling oiled leather. Its border is firm, thick, and resistant, but not painful; the cervix, although already dilated to a certain degree, preserves, as in cases of abortion, a sort of relative length."² I recall in my own practice but two cases in which the conditions answered this description. Both were primiparæ, both delicate, nervous women; both had, prior to labor, the typical long, conical os; both gave histories of cervical catarrh; both had prolonged and extremely painful first stages. In the first case the os finally dilated under chloral, but was lacerated. In the second, albumin had been present in the urine for two weeks prior to delivery. After being in labor for thirty hours—the last twelve hours with severe pains—the cervix had dilated only to the size of a silver dollar. The margins of the os remained as thick as one's finger. Chloral, morphia, hot baths, and hot douches had had but little relaxing effect. Convulsions now came on. Chloroform was administered, assistance obtained, manual dilatation of the cervix made, and delivery by forceps accomplished under full anesthesia. The convulsion was not repeated, and the patient made a good recovery. There was an extensive laceration of the cervix. I am convinced a few slight incisions before delivering with forceps would have been better practice and would have saved the deep laceration.

By "pathological rigidity" is meant that due to bands or cicatrices, tumors or cancer of the cervix.

"Spasmodic rigidity" is that most frequently met with. We have already referred to the frequency of its occurrence in primiparæ at the two extremes of the child-bearing period.

¹ *Lyon Médical*, March 9th, 1891. *Archives de Tocologie*, January, 1891.

² "Cyclopedia of Obstetrics and Gynecology," vol. iii., p. 161.

The most common causes are frequent examinations, injudicious attempts at dilatation, premature rupture of the membranes, the administration of ergot, overdistention of the membranes, adhesions between the membranes and cervix, deviations of the axis, malpositions, pelvic deformity, "constitutional peculiarities, among which there is none so common as a highly nervous and emotional temperament, which renders the patient peculiarly sensitive to her sufferings and interferes with the harmonious action of the uterine fibres" (Playfair). It is supposed that the spinal nerves distributed to the cervix have an inhibitory function through which its circular fibres are thrown, under prolonged irritation, into tonic contraction. According to Lusk, the so-called spasm of the cervix is but an indication of a similar condition of the whole uterus. "The activity of the organic changes which lead to softening and dilatation is closely related to the activity of the uterine contractions. . . . The uterine contractions may be abnormal from the commencement of labor; more frequently the loss of their expulsive character is a secondary condition. In many primiparous women labor progresses in an auspicious manner for a time, inspiring hopes of a speedy termination. Then the cervix, which had previously been dilating favorably, becomes rigid, the sufferings of the patient during each contraction are enhanced, and further advance is arrested. This transformation is not to be accounted for by a spasm of the circular fibres of the os, but is the result of secondary changes in the action of the uterus itself. The right understanding of the phenomenon in question renders it necessary to recall the physiological fact that the uterus is endowed not only with contractility, but with retractile properties likewise. Normally, the gradual closure of the uterus upon the ovum leads, with a dilated os, to the permanent formation of the bag of waters. When, however, from any cause the cervix dilates slowly, and the pains are strong and close together, as the uterus retracts upon the stationary ovum the excursions made by the labor pains shorten. The continuance of the same process leads finally to the close investment of the ovum by the uterus, when the only indication of contractility which remains is the increased hardening of the uterus at short intervals. These changes in the character of the contractions are marked by corresponding changes in the cervix, the condition of the latter affording an index of the entire uterus."

Other complications may require more manual dexterity on the part of the obstetrician, but none call for more *judgment* than the treatment of a *prolonged first stage*. The discovery of the *cause* of the cervical rigidity may at times require the highest diagnostic skill, and upon correct diagnosis must the treatment be based. The position, the size of the pelvis and of the head, should be carefully determined. Malposition and deviation of the axis should be corrected. If an extension of the head should be preventing it from pressing properly, the mere pressure of the finger upon the forehead may flex it. While it is true that the majority of cases of rigidity call only for time and patience, the exercise of the "wise and masterful inactivity," with perhaps the administration of sufficient chloral to alleviate the woman's sufferings, it is also true that the belief that the first stage of labor is never fraught with danger and *never* needs interference has brought disaster to many mothers and children. In rare instances interference may even be called for prior to rupture of the membranes.

Having corrected, then, or removed if possible, the causative factor, we may consider what remedial measures are at command for the rigidity itself, whether it be "anatomical" or "spasmodic."

The dilatation of the os by the finger may be useful at times. Extreme care must be exercised that the attempt does not produce, or, if already present, increase, spasm of the circular fibres. The colpeurynter is much more efficient and safe where mechanical dilatation is called for. It should be used with strictest antiseptic precautions. When the membranes have ruptured and a section of the presenting part is pressing closely upon the rigid os, the introduction of the bag will usually be impossible.

In those cases in which dilatation is prevented by adhesions between membrane and cervix, sweeping the finger around the inner surface of the os and separating them will quickly produce a change.

Aside from those cases in which the rigidity is due to organic changes in the tissues of the cervix, the removal or correction of the mechanical obstructions to the progress of the presenting part will insure the completion of dilatation, provided the longitudinal fibres are doing their part with sufficient power.

How the uterine contractions may be increased or restored, if in abeyance, has been a question long discussed. Formerly ergot

was universally employed and considered both safe and efficient. Its use during the progress of labor is now unanimously condemned, as bringing, by producing tonic and tetanic contraction, still greater peril to mother and child. If tonic contraction of the whole uterus is not present, the uterine power may be increased and supplemented by uterine expression. Playfair¹ speaks highly of this method of intensifying feeble uterine action.

Another powerful stimulant to uterine action, worthy of more attention than it has received, is electricity. Following the appearance of Dr. Baird's article in *THE AMERICAN JOURNAL OF OBSTETRICS* several years ago, in which he gave what must be considered, I think, a very exaggerated estimate of the usefulness of the faradic battery in obstetrics, I made numerous experiments with it. In properly selected cases it undoubtedly strengthens the uterine contractions. In some cases it seemed to have a favorable influence in relaxing spasm of the os. In my own cases it did not have the pain-stilling effect attributed to it by Dr. Baird, except in an occasional hysterical subject.

Quinine in doses of ten to twenty grains has seemed to me notably to increase the power of the uterine contractions, as claimed for it by Drs. Barker, Albert H. Smith, Playfair, Lusk, and others. "I do not hesitate to give it in every case, because, even where there is no decided inertia at the onset of labor, there may be failure of the powers of the mother from early exhaustion and fatigue, and we get the benefit of the quinine in diminishing this tendency, and also in promoting the condensation of the uterine fibre after the delivery of the placenta, thus lessening the danger of post-partum hemorrhage and the annoyances of the after-pains so commonly resulting from a slow condensation of the uterine muscle."²

The many other remedies which have at various times been recommended as oxytocics have not maintained their reputation. Ipecac, which has been at times advocated in small doses, probably acts as a relaxant merely. Blood-letting, emetics, warm baths, and belladonna are now practically discarded. The hot donche (with the patient upon her back) frequently repeated will assist in relaxing the rigid os. When short, weak, "teas-

¹ Vide "System of Midwifery," and *British Medical Journal*, 1890, p. 715. An interesting paper on modern methods of managing lingering labor.

² "Retarded Dilatation of the Os Uteri in Labor," Albert H. Smith, p. 27.

ing" pains are exhausting the patient and accomplishing little or nothing in opening the thin, rigid os, an agent which will stop the pains by giving the woman rest, recuperating her energies, removing the reflex irritation, and thus relaxing the os, will be followed often by satisfactory progress when its effect has passed off. For this purpose opium, by suppository, by the mouth in the form of Dover's powder, or in the form of morphia hypodermatically, is superior to all other remedies. When it is not desired to stop the pains, but to mitigate the suffering, to so lower the reflex centres as to remove the inhibitory stimulation of the cervical fibres, chloral is the remedy to be chosen. It is not necessary now to argue the value of chloral in the first stage of labor, for it is established and the limits of its usefulness defined. The rule given by Playfair, to administer fifteen grains every twenty minutes for three doses, and not to exceed sixty grains during the labor, is probably the best to follow. When chloral in full doses has failed to secure relaxation, as it will occasionally, chloroform inhaled during the pains may succeed. I have several times given it during the first stage, and have never seen it produce any unfavorable symptoms in mother or child. It will sometimes relax the os sufficiently to allow the forceps to be applied, which may then be used to dilate the cervix by gentle tractions upon the head during the pains, though to thus use the instrument without doing injury requires skill and care. When a reasonable trial of other measures has failed, incisions of the rigid os may be made—of course under the strictest antiseptic precautions. The incisions should be made at several points, and need not be deep—one-sixth to one-fourth inch will usually suffice. They should be made with seissors or probe-pointed bistoury. When the forceps has been applied as a dilator, it is often advisable to make a few slight incisions before completing delivery rather than risk a deep laceration.

CORRESPONDENCE.

THE SPONGE DRESSING FOR MAMMARY ABSCESS.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—I am not anxious to press any claim for priority in the treatment to which this letter refers, but I think that I deserve a little more credit for introducing and perfecting the method of speedy and sure healing of mammary abscess by compression with a large sponge than is accorded me under the name of a “suggestion” by Dr. Samuel L. Weber in his article on “A Prompt and Radical Cure of Mammary Abscess by a New Method of After-Treatment” in the January number of this JOURNAL. That this method has been used by me for twenty years, and has been described in print (briefly, it is true), is proved by the following letter which I sent to a Richmond medical journal called *Practice*, and which was published in its issue of April 15th, 1888:

“*Editor Practice:*

“I wish to add my testimony from an experience of over fifteen years to the statement of Dr. W. J. Harris in your February issue in regard to the use of sponge dressing for abscesses, so far as it applies to mammary abscesses. I know of no means so safe, sure, and rapid as equable compression by a large bathing sponge to insure speedy cessation of suppuration and a complete closure of the abscess cavity in the female breast. After evacuating the pus through a fairly large incision, I apply a large, coarse bathing sponge, cut out in the centre to receive the gland, and steeped in hot two-per-cent carbolyzed water, and rapidly squeezed dry, over the whole breast, cover it with oiled silk, and press it firmly against the thorax by two large folded three-cornered bandages, the first lifting the breast up and being tied behind the neck, the second going directly around the thorax. The abscess cavity is thus kept continually emptied, and its walls, being in apposition by compression, incline to adhere and thus secure a speedy closure of the abscess.

"According to the amount of suppuration, the sponge is washed and reapplied three or four times in twenty-four hours for the first day or two, later on less frequently. The largest mammary abscesses I have seen, involving the whole gland, have been completely closed under this treatment in less than one week. It is particularly applicable to cases where some of the gland tissue is still hard and brawny, and where the drainage tube only seems to irritate the wound.

"This dressing is convenient, inexpensive, easy of application, and perfectly efficient, in every way far preferable to drainage and strapping.

"I have not found it necessary to syringe out the abscess cavity with bichloride solution, although if the pus were offensive I should certainly do so.

"I do not remember where I first heard of this method of treating mammary abscesses, but it certainly was not from the books. Since I have been using it, I believe I have seen it mentioned in surgical literature; where, I do not recollect.

"Yours truly,

PAUL F. MUNDÉ, M.D.

"20 WEST 45TH STREET, NEW YORK,
March 23d, 1888."

It will be noticed, Mr. Editor, that I do not absolutely profess to be the inventor of this method, for I have a dim recollection of having had my attention called in some way to the principle of sponge compression in large abscesses many years ago. Still, I believe I first applied it independently to mammary abscesses, and may thus, I think, fairly claim the priority in this respect.

I wish in no way to detract by this claim from the credit Dr. Weber deserves for having extended the method to *old*, neglected mammary abscesses, where the primary removal of the necrotic tissue with the curette is indispensable in order to present a clean wound for apposition and union, thus establishing conditions similar to those existing in a fresh abscess.

As an illustration of the superiority of the treatment by compression with sponge chiefly, aided by properly applied rollers of cotton, over the drainage-tube and gauze-packing method in mammary abscess, I will merely mention a case, which I saw a year ago, of a lady who for three months had been treated (and tortured) by the latter method until six incisions had been made in the breast, and the patient was physically and morally a wreck

from pain and anxiety, without any sign of a closing of the abscess. The tissues were so infiltrated and disorganized by the constant irritation and pressure of the gauze that I at first doubted whether I would not have to use the knife and curette before the compression. Still, I decided to try to avoid any more cutting, and, finding that the dressing was not properly done at home, admitted her to my private hospital and applied the sponge and cotton-roller compression myself every day. In exactly one week she was discharged with the breast entirely, and permanently, healed.

No doubt others have used this method, perhaps independently of me; but the fact remains that I first employed it nearly twenty years ago, without knowing whether it had ever been used or not.

Yours truly,

PAUL F. MUNDÉ.

DR. ROSS' PAPER ON ECTOPIC GESTATION.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—In the paper of Dr. Ross which is found in your JOURNAL for January, 1893, on page 25 he refers to a case of extra-uterine pregnancy which I reported in a paper read at the meeting of the American Gynecological Society in 1888. My paper appears in the Transactions of the Society for that year. Dr. Ross wishes to draw certain conclusions in his paper, and makes me to say: "Patient 26 years of age, last child five years ago. In April, 1887, she had nausea and frequent desire to urinate. She lost some blood and passed what was supposed to be decidua. She continued to lose a little blood, her pain increased, and a piece of *decidua*¹ again passed. There was no elevation of temperature. Tubal pregnancy was suspected, and electricity was employed while the patient was under chloroform. After the third dose the breasts became flabby and the nausea ceased, but there was much hemorrhage for two weeks. Recovery took place in July." He then states: "Many a woman has just such symptoms as the above and has no ectopic gestation. Such an observation as that just related of my friend Dr. Hanks I consider as incomplete, and, being incomplete, I consider it of no

¹ Italics are mine.

value in establishing the virtue of the treatment carried out when used in other cases of *undoubted* ectopic gestation."

The original report reads as follows: "CASE I.—Mrs. F., *twenty-eight* years, married six years, one child five years ago. Has been under my professional care for several years for uterine and tubal catarrh. She has been much improved, and has not been seen regularly for the last six months. Was *accustomed to consult me on all occasions when in any way ill, and would have consulted me if anything unusual had occurred to disturb the function of the sexual organs.* She called on me on March 15th, 1887, and reported that she had not been unwell on the *tenth of March, as she ought*, and, being anxious for a child, asked as to the probability of pregnancy. She complained, at the time, of a feeling of *fullness in the breasts*, and a *desire to pass urine often*, with a slight *gastric disturbance*, etc. I encouraged her to believe herself pregnant, as she was a woman in full vigor of a fine *physical development*, and had always been *perfectly regular except when pregnant.* She did not consult me again until April 5th, when she reported that she had lost some blood, and had expelled some solid matter, which I saw and believed to be decidua of pregnancy. She had occasionally had severe, but not alarming pain in the region of the left ovary. I believed she was threatened with an abortion, and ordered absolute quiet in the recumbent posture, with the use of chloral and morphia, and fl. ext. viburnum prunifolium. She remained much the same, occasionally losing a small amount of blood, which sometimes came away in a gush, and at times suffering from a severe pain in the left ovarian region. These pains gradually grew more frequent. On April 16th they became exceedingly severe, so that the countenance of the patient expressed the greatest anxiety and distress: the pulse during and after each paroxysm was rapid. Only morphia in full doses, hypodermically, afforded any relief from pain: while stimulants were given *pro re nata.* An additional piece of *decidua was now expelled.* There were *no febrile symptoms*, however. Fearing an extra-uterine pregnancy, a *gentle, but thorough bimanual examination by vagina and rectum was made.* The uterus was found in normal position, *slightly enlarged, movable, not excessively sensitive*, with no *appreciable increase of temperature, normal density, os externum open to size of No. 18 American scale of bougies.* Pulsation of *pelvic arteries exaggerated.* To the left of the body of the uterus, in the region of the left ovary

and tube, *an elastic, exquisitely sensitive, movable, ovoid tumor, one and a half by two and a half inches*, was discovered. This tumor, I was absolutely certain, *did not exist early in January last. . . .*"

"The patient was kept under the influence of morphine hypodermically administered. Her friends were advised of her condition, and *Prof. Thomas* was called as consultant physician on Monday, April 18th. *He confirmed my diagnosis.*"

Of course, I am quite happy to have the members of our profession draw their own conclusions, after they have been permitted to read the *original report*.

Yours very truly,

HORACE TRACY HANKS.

766 MADISON AVENUE, January 12th, 1893.

[NOTE.—In justice to both Drs. Ross and Hanks we must state that the lines quoted by Dr. Ross appeared in this JOURNAL for October, 1888, on page 1060, and are correct as there given, the reporter who made the abstract having failed to record the essential factor, viz., the presence of the movable ovoid tumor.—Ed.]

PELVIC MESSAGE.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC. .

DEAR SIR:—In an article in your issue for the month of December, entitled "Pelvic Massage," the author, Dr. Josephine Walter, undertakes "to disprove two assertions which nearly every pupil of Thure Brandt, nearly every writer on the subject, even Thure Brandt himself, emphatically makes, namely, that two prerequisites are absolutely necessary to secure good results: first, study of the technique with Thure Brandt himself; second, the side position and low couch in applying the treatment."

Being myself a pupil of Thure Brandt, and having also written a couple of articles on the method, and recently having had occasion to peruse the literature on the subject, I am at a loss to know from what sources Dr. Walter gained the data for the first assertion. Neither Brandt himself nor any of his pupils, to my knowledge, have expressed such a sentiment. On the contrary, Brandt, on account of his limited facilities for teaching, is constantly referring the numerous applicants to study under him to some one of his pupils in Germany or elsewhere. But the

assertion that *has* been made by almost every one who has written on the subject from practical knowledge is that, in order to acquire the *technique* of the method, reading books or articles is not sufficient. This is a conviction which the author herself expresses a little later in nearly the same words when she states: "To them I am very much indebted for a knowledge of the *finish* in manipulation, which can hardly be learned from any book or monograph on the subject."

Having shown that the author built the first assertion on a foundation that does not exist, it is unnecessary to pull down the superstructure she has erected upon it.

Now as to the second assertion. It is correctly stated, but to my mind the author has failed in the task she imposed upon herself of confuting it. As it is a matter of prime importance, I must be pardoned if I discuss it at some length. The position of both patient and physician, I may say, is the Alpha and Omega of Brandt's method. The one renders the pelvic organs accessible as no other position does; the other makes it *possible* for the operator with the average muscular strength to carry out the various manipulations necessary. As to the truth of the first proposition there is no doubt whatever. It is easily demonstrated. Take the same patient, first examine her on the ordinary gynecological table or chair, then place her on the low couch, with the legs flexed and the head and shoulders well elevated, and you will be surprised at the greater ease with which you will be able to palpate the pelvic organs. Further still, you will be able to feel distinctly an ovary or a tube in this position, which you could not possibly reach in the other. The value of being able to do this cannot be overestimated in the application of pelvic massage. For, in the first place, an accurate diagnosis is of the utmost importance, and, in the second place, it is a physical impossibility to massage an organ or stretch an adhesive band unless you have it between the abdominal hand and the finger (or fingers, if two be used) in the vagina. The latter circumstance needs only to be stated to show its force. Gynecologists of note (Landau and others) who have taken no especial interest in pelvic massage have written at length upon the advantages of Brandt's position of the patient for diagnostic purposes alone. The seated position (not lateral, but at the foot and side of the couch, the left knee embracing the corner of the couch) of the operator is *not* a mere corollary of that of the patient on the low

couch, as the author states. It is as essential on its own merits as is the position of the patient just described. The necessary manipulations for massaging the pelvic organs and for gradually stretching and breaking up adhesions are fatiguing, very fatiguing, to the operator, even when he or she is placed in the most favorable position to exert the muscles concerned in the labor. It is this feature of the method which forms a formidable barrier to its general adoption by the specialists devoted to the study and treatment of the diseases peculiar to women.

The most favorable position is when the operator is sitting so that he can rest the left elbow on the left knee and execute the movements of the right hand from the shoulder. Every school boy knows how much less fatiguing it is to write with the muscles of the arm than with those of the hand, and every man knows how much more powerful is a blow coming from the shoulder than one coming from the elbow. The advantages of being able to rest the left elbow on the knee are self-evident. The arm does not grow tired, as it quickly does without the support; the fingers are better enabled to steady the parts to be *masséed*, and to perform those difficult manœuvres needed to replace displaced organs and put tissues on the stretch. "It is a positive fact," the author says, "that no local application can be made with the patient on the Brandt low couch." But is it? All the local applications (a glycerin or ichthyol tampon) indicated can just as easily be made with the patient on the low couch as on the office table or chair. It surely does not require much skill or dexterity to depress the perineum with the left index finger, and to place with the uterine forceps a tampon in any part of the vagina, no matter what may be the position of the patient. Any other local application is superfluous, and a resort even to this is not often called for.

Just one question and I have done. Why read and reread Resch's translation, which is clumsy, confusing, and inaccurate, when Brandt's original work appeared nearly two years ago in German with a simultaneous translation in French? Since then William Wood & Co. have published an excellent translation in English.

HIRAM N. VINEBERG, M.D

167 EAST 61ST STREET, December 10th, 1892.

TRANSACTIONS OF THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, December 22^d, 1892 (concluded).

ROBERT A. MURRAY, M.D., *in the Chair.*

PELVIC SUPPURATION AFTER THE MENOPAUSE.

DR. HENRY C. COE read a paper on this subject, relating the histories of two cases. The menopause was the period of degenerative rather than of inflammatory processes, and on account of the rarity of suppurative pelvic disease at this period he related these cases. The first was in a patient 55 years of age, mother of several children, who had passed the menopause ten years previously. She had a uterine fibroid, but it had given her so little trouble that she was not yet aware of its existence. She attributed the commencement of her trouble to overwork in her household duties, and there was no other apparent cause. There was febrile movement and some pelvic pain, but the diagnosis remained for some time obscure. In the course of time a well-marked induration could be felt in the inguinal region, occupying the usual position of an abscess occurring during the puerperium. Dr. Bull cut down upon the abscess, which was extraperitoneal, and a few drachms of pus were found. The cavity was packed with iodoform gauze. The sinus subsequently refused to heal, and finally Dr. Coe made a counter-opening below in the vagina about half an inch from the vulva. The recovery then soon became complete.

The other case occurred in a woman, aged 53, who had passed the climacteric eight years previously. She had borne two children, but had never before had any pelvic trouble, and could give no satisfactory cause for her illness. In July she began to have chills and irregular elevation of the temperature. She soon began to have symptoms of dysentery, and in August pus began to be discharged per rectum. She was a patient of Dr. Baruch's, who found an enlargement in the left ovarian region, which would become indistinct after a copious discharge of pus per rectum. It was also clear that the temperature was connected with the filling of this pus sac. The family would not consider a radical operation by celiotomy, so Dr. Coe introduced a trocar into the tumor from the vaginal fornix; but the tumor

disappeared, from discharge of its contents into the rectum, before he had time to cut into it along the trocar. The result had been unexpectedly good, for the patient now had very little trouble, although she was still under Dr. Baruch's care.

The cases were of interest for the reason that in the first instance the abscess was of extraperitoneal type, which almost always was of puerperal origin; while in the second it was believed to have been ovarian, due to infection of an ovarian cyst which had become attached by inflammatory adhesion to the gut and thence become infected and gone on to suppuration.

DR. SIMON BARUCH said there was little doubt in his mind but what the case was originally one of ovarian cyst. He had made the diagnosis of a distinctly limited tumor in the left ovarian region the second day after he was called to see her for dysentery. He had not been able to make out the swelling since Dr. Coe's last examination. He thought rectal injections of peroxide of hydrogen had done much toward checking the suppurative process.

DR. H. J. BOLDT had seen suppurative pelvic disease after the menopause in three cases, in one of which it was demonstrated to have been due to a former pyosalpinx. He thought proximity of the bowel had to do with the production of the suppurative process, at least in some cases. Double drainage was usually necessary.

DR. THOMAS H. MANLEY inquired whether Dr. Baruch had observed any caustic or irritating effects from peroxide of hydrogen.

DR. BARUCH said that the tenesmus was reduced rather than increased by the injections.

DR. A. F. CURRIER remarked that senile vaginitis after the menopause was not uncommon. Might it not lead to other pelvic inflammatory troubles?

DR. COE said, with regard to the likelihood of senile vaginitis causing trouble in the tubes, that he did not think it was of infectious nature. In the two cases which he had related there had not been either vaginitis or endometritis.

DR. MURRAY had seen a number of cases of pelvic inflammation after the menopause, especially in hard-working women, but it had not gone on to suppuration. In two other cases of abscess the suppuration was supposed to be connected with fibroids. He knew no reason why there might not be independent pelvic abscess after the menopause, just as there was before puberty. Regarding Dr. Manley's question as to the caustic or irritating effects of peroxide of hydrogen, he said he had observed a white condition of the mucous membrane of the mouth follow its use in diphtheria, so that he had stopped it and substituted bichloride or boracic acid.

THE FARADIC CURRENT BY THE BIPOLAR METHOD IN GYNECOLOGY,
WITH EXHIBITION OF AN IMPROVED APPARATUS.

DR. A. H. GOELET talked upon the conditions necessary for success with the use of the faradic current by the bipolar method in the vagina, and showed some instruments, including one made according to his own wishes. This instrument differed from those commonly in the market in that there were three cylinders with varying lengths of wire. The coarser and shorter wire produced a harsher current than the longer, although with the same power and number of interruptions per second. The coarser and shorter wire, with possibility of only comparatively few interruptions, were to be seen in most instruments, and accounted for the indifferent results produced. He also exhibited a modified Apostoli bipolar electrode, the internal being made the heavier end, so that it would not fall out by gravity.

Meeting of January 26th, 1893.

EGBERT H. GRANDIN, M.D., *afterward* H. J. BOLDT, M.D.,
in the Chair.

DR. HERMANN J. BOLDT was elected Chairman, and DR. J. CLIFTON EDGAR Secretary, for the ensuing year.

A SUCCESSFUL CASE OF SYMPHYSIOTOMY.

DR. H. J. GARRIGUES presented some instruments and pelves and related the following case :

On December 30th, 1892, shortly after midnight, I was requested by Dr. Samuel Murland to see Mrs. B. in consultation with him. She had been in labor since early morning. The cervix was half-dilated and entirely dilatable. Waters not broken. It was a case of generally contracted pelvis, and labor pains had stopped. I intend to publish the case with all details and compare it with other similar cases. Here I wish only to show the instruments used, and two pelves from other cases which throw considerable light on this one.

Toward evening I performed symphysiotomy. The child was delivered by turning. The extraction of the head proved difficult. The child was slightly asphyxiated, but needed only a little spanking to make it cry out, and is now in excellent health. It was a boy, weighing seven and a half pounds.

The mother has been very sick in consequence of metritis and nephritis. How infection took place cannot be proved. She had been examined before I saw her, and antisepsis in a tenement house is quite a different thing from antisepsis in a hospital. However this may be, I have succeeded in pulling her through. Pulse and temperature are now normal, and during the last four days she has been up a little every day. She

can walk without bandage and without support, and her gait is entirely normal.

As to the symphysiotomy, the case has been an undisturbed success. When she developed the high temperature I thought there might be suppuration in the depth of the wound, which I had closed from end to end. I removed, therefore, one suture at the upper end and two at the lower, and introduced a forceps from above and from below down to the cut symphysis; but there was no trace of pus in the depth, only a little around a superficial suture.

On January 18th—that is, the twentieth day after the operation—I made for the first time a thorough examination of the symphysis and found perfect union, no swelling, no callus, no tenderness, no mobility. She could lift her legs, place her heels against the couch and lift her pelvis, and let the knees fall out to the side without any diastasis being felt by the examining finger in the vagina.

The woman is 24 years old, has been delivered once of a dead child by high forceps operation, and has had one miscarriage. She has a very high symphysis, fully two inches long, and a thick layer of adipose tissue on the mons veneris. My incision was four inches long, ending three-quarters of an inch below and to the left of the clitoris. It was made with a sharp-pointed, convex scalpel, which I show here. The tissue behind the symphysis was only separated from the latter with a common director, which I bent so as to conform to the posterior surface, but which I withdrew again and replaced by a concave, blunt-pointed bistoury, which I show here. With this I cut the whole symphysis, inclusive of the suprapubic ligament, from behind forward and from above downward, while an assistant held the urethra over to the right side.

I think this small knife is preferable to the one I show you here, and which is Galbiati's *falcietta*, which Morisani, of Naples, uses, the man to whom we owe the revival of this old French operation. The *falcietta* is unnecessarily large, and there is no necessity of cutting from below upward. It is even doubtful if there is any preponderating advantage in cutting from behind forward. As you see, on this pelvis the cartilage is much thicker at the two ends and in front, and is therefore more easy to strike from either end and from the front. As serious bleeding exclusively takes place at the lower end, it is best to go from above downward.

I have had this bandage made for the case, but only used it after three weeks, when the patient probably could have done as well without it. Until then I used three straps of rubber plaster, two inches wide, put around the trochanters and crossed above the wound. This proved so excellent during the treatment necessitated by the complicating infection that I strongly recommend it.

I wish to show the pelvis of my first Cesarean section case. It is a kyphotic pelvis, a great rarity. In that symphysiotomy could not have been performed, because both ilio-sacral joints are diseased, the left forming a synostosis, the right being the seat of caries, and the symphysis forming a zigzag line which would prevent the passage of the knife.

On the other hand, I wish to show this pelvis from a 25-year-old primipara, which is exactly of the same kind as that upon which I have successfully performed symphysiotomy, while in this case I had an exceedingly difficult turning with perforation through the spinal canal and death of the mother from shock. It is the only kind of narrow pelvis that is common here, and I heard last fall that the same applies to Boston—namely, the generally contracted pelvis with male type. It so happens that this pelvis is not only of the same kind, but has almost exactly the same measures, and the children must also have been about alike, both having large, hard heads, one weighing seven and a half pounds, and the other, after loss of brain, seven pounds six ounces. This kind of pelvis gives, in my experience, so bad a prognosis that years ago I had it entered as a memorandum in the history book of the Maternity Hospital that in my opinion it was better to perform Cesarean section in such cases.

But now we have symphysiotomy, which is particularly adapted to them, since it increases all diameters and is much safer than Cesarean section.

As far as I know, this is the first case of symphysiotomy performed in this city, and the complete success can hardly fail, in connection with similar reports from other places, to encourage others to follow.

DR. HERMAN L. COLLYER thought the sacro-iliac synchondrosis might have been the starting point of an abscess and of sepsis. There was some reason for thinking this, because in a case of generally contracted pelvis, in which he carried out the after-treatment, an abscess did develop at the sacro-iliac joint and there was appreciable mobility at this joint, while the pubes had separated three-quarters of an inch.

DR. DICKINSON was disposed to think the usual direction of the incision adopted by Morisani preferable to cutting from in front backward.

DR. C. A. VON RAMDOHR took exception to the statement that the usual form of contracted pelvis seen in this country was the generally contracted or that of the male type. At any rate, it was not so in the class of patients seen by him, for he had seen as many as eighty cases requiring interference in labor, and the large majority were of the flattened or rachitic type. He thought there was danger of symphysiotomy being performed too often, and especially by inexperienced obstetricians or gynecologists. A little contraction existing, the conclusion was liable

to be reached that an operation said to be so free from danger was indicated, whereas patience and non-cutting procedures might deliver the woman. It should be remembered that even so careful a man as Dr. Garrigues was known to be could not avoid sepsis, or knew not its source in this case. Still he hoped symphysiotomy would come to replace craniotomy on the living child.

DR. EGBERT H. GRANDIN congratulated Dr. Garrigues on being the first to perform symphysiotomy in New York City. He, like many others, had purchased Galbiati's knife, and was ready to do the operation as soon as a case should arise. But he was much inclined to think that the sphere of symphysiotomy would prove to be a limited one. He was not inclined to look upon it as free from risk as some had taught. He had been told by men of considerable anatomical experience that after the age of 21 some difficulty would be experienced in making pubic section, and still more difficulty in obtaining the amount of separation which some in their enthusiasm had claimed was altogether possible. He did not wish, however, to throw cold water on the operation, and hoped it would come to do away with craniotomy; yet he thought it should be undertaken only by trained hands, and feared it would be resorted to by others in cases where version would effect delivery.

DR. J. CLIFTON EDGAR thought the generally contracted pelvis was very rare. He had recently looked up about thirty-three hundred cases of labor, mostly among the immigrant classes in this city the past three years, and had not found an absolutely contracted pelvis among any of them. The cranio-clast had been used in only one for contracted pelvis and on the after-coming head. It seemed to him that symphysiotomy must have a future. If the symphysis could not be divided with the knife, why not with the chain saw, or, if necessary, to one side of the symphysis? It was destined to save many still-births which now took place in pelves under three and a half to three and a quarter inches. It was much more promising than Cesarean section had been.

DR. ROBERT A. MURRAY thought that while the operation was not a difficult one, yet it should be reserved for one who had had considerable experience with obstetrics and knew just what could be done by other measures, especially version and forceps. Version in a pelvis less than three inches and a half was almost always fatal, yet the size of the head should be considered. Something was gained in the antero-posterior diameter as well as in the transverse by symphysiotomy. The baby at birth was larger in this country than in Europe. If the bones were hard and the sacro-iliac synchondrosis thick, it was a question whether Cesarean section might not better be done at once.

DR. GARRIGUES closed the discussion. Six centimetres separation of the symphysis was perfectly safe. It should be

remembered that during pregnancy all the joints were thinner and more movable. As to hemorrhage, one should have half a dozen artery forceps at least, and ligatures might be used. The only serious hemorrhage was on cutting the subpubic ligament. In order to better control hemorrhage he preferred the long incision, while some used the very short one, and others the medium incision. He had been asked how he knew when the symphysis was divided. It was known by their immediate separation. The flat pelvis of Europeans was rare among Americans. Symphysiotomy was attended by enlargement of all the pelvic diameters. He entirely agreed with the statement that the operation should only be done by a man of experience. Forceps had not been used in this case because the head had not engaged and the waters had not broken, and it was for the same reason version was resorted to after symphysiotomy. It was not difficult. European children weighed at birth about six to seven pounds, Americans seven to eight.

THE TREATMENT OF PURULENT PUERPERAL PERITONITIS.

DR. EGBERT H. GRANDIN read the paper. He said that some years ago he had treated cases of puerperal peritonitis which came under his observation by the opium method of Clark, and they all died. Then, six or seven years ago, the saline method came into vogue, and he tried that and found all the patients still died. More recently he had resorted to surgical treatment, and in illustration he related four cases. In all there were marked symptoms of sepsis with the peritonitis. He had never seen a more marked case of sepsis than the first one, when he was added to the consultants. Nothing further could be recommended than to open the abdominal cavity, which he did, and found an abscess cavity, chiefly on the left side, communicating with the uterine cavity through an opening at or near the tube. The cavity was washed out and drained through the uterus, and the woman recovered. In this case he was dealing with a localized purulent peritonitis complicated by general sepsis. It may have been a case of pyosalpinx before labor, or infection may have occurred during some injections. The second case also presented every evidence of septic infection and peritonitis, and obscure fluctuation could be felt to the left of the uterus. It was not until another consultant was added that abdominal section was permitted, and he then found general purulent peritonitis. The abdominal cavity was washed out, but the patient died. The signs pointed to a ruptured pyosalpinx, and had the patient been operated upon early she might have been saved. In the third case, as in the others, certain measures had been resorted to without avail before he was called, including in the third case salines and washing out of the uterus. On opening the abdomen he found sero-purulent fluid throughout the peritoneal cavity. The

patient died in about fifteen hours. In the fourth case there was marked general sepsis and local fluctuation in the region of the left broad ligament and a boggy tumor above Poupert's ligament. The latter was incised above the ligament, and pus and urine escaped. The patient was then up, and about well.

The author said he was not ashamed of this result, although it was not very brilliant. It might seem strange that it was possible to save nearly one hundred per cent of cases of local purulent peritonitis when all of general purulent peritonitis died in spite of every effort. In seeking for an explanation the author said that the two methods of infection are, first, by direct extension from the uterine cavity or a previously existing pus cavity, or, second, by lymphatic absorption. In the former case the peritonitis was likely to remain a longer time local before becoming general, and, if attacked in time by removing the focus of infection, the patient would recover. The reverse was true for purulent general peritonitis, which was likely to be secondary to systemic infection, poison filling the whole body as well as the peritoneal cavity. Unfortunately in such cases we could not let pus out of the lymphatics, and the systemic infection progressed until death ended the scene. Those who claimed to cure such cases failed to make a distinction, he thought, between local and general septic peritonitis. Nevertheless he was in favor of surgery even in the cases of general purulent puerperal peritonitis, for only by opening the abdomen could we be certain that the peritonitis was not local, the tympanites obscuring an exact diagnosis. An early operation was extremely important in any case of purulent peritonitis, and no means should be neglected for establishing the diagnosis as soon as possible. Doubtless many cases were treated for supposed malarial condition until it was too late to save the patient by surgery.

DR. C. A. VON RAMDOHR thought all were agreed that where a pus sac existed in the peritoneum or elsewhere they would like to empty it, whether it were originally a pyosalpinx, a parametritis, or other condition. We would not wait for it to rupture into the bladder or into any other cavity, lest it should then prove too late. But unfortunately we did not always get the cases from the start. He thought Dr. Grandin took rather a roseate view of prophylaxis. Prophylaxis seemed better in theory than in practice, since we still got many cases of puerperal fever. Puerperal fever and puerperal peritonitis assumed such a protean state that the cases cited by the author were only exceptional ones. If the case were not seen until there was great swelling of the abdomen, we could not tell whether it were purulent peritonitis; and if it were not, the patient might recover without laparotomy, simply using alcohol freely. He thought, therefore, that where pus could be made out it should be opened; but if the case were one of general peritonitis and

we could not be sure of the existence of pus, it were better to treat it on the alcoholic plan.

DR. VINEBERG said he would take the stand of the last speaker. Unless we could find pus beforehand we would hardly be justified in doing laparotomy. Some years ago he had seen a number of cases of puerperal peritonitis attended by midwives, and the results had been good when a collection of pus could be discovered and was opened through the vagina or ruptured of its own accord.

DR. GEORGE M. EDEBOILLS said it had been his experience to see a great deal of puerperal fever in the part of the city where he practised. Two or three years ago cases were crowded into his hospital service in a very uncomfortable manner. His observation had coincided closely with that of Dr. Grandin. He had three times performed laparotomy—or, as it was now the custom to say, celiotomy—for general puerperal purulent peritonitis, and each patient promptly died, not as a result of the operation, but in spite of it. The sepsis not being removable, the patient succumbed thereto, although the abdomen was irrigated and disinfected as well as it might be. Then he had seen a number of cases in which pus was localized, and he had opened through the vagina or above Poupart's ligament, and most of the patients had recovered. In one the pussac was in the wall of the uterus. He would hesitate, if he could make the diagnosis, to operate for acute general puerperal purulent peritonitis. In general peritonitis he would thoroughly cleanse the genital canal from the cavity of the uterus down, stimulate the patient, and try once to secure catharsis by salines, but would not by repeated attempts clog the intestine by irritants.

DR. HERMAN COLLYER thought the author was perhaps a little in advance of the age. At present we were not able to make an accurate diagnosis between general puerperal and localized peritonitis. There were some very obscure cases of pelvic abscess which appeared to be general puerperal peritonitis. Opening the abdomen, in the main, did not appear to endanger the patient's chances, while it gave an opportunity to more exactly learn the condition present. If it were a general peritonitis which was on the verge of becoming purulent, one might save the patient, whereas had twenty-four hours more elapsed it might have become purulent and passed all aid. But he thought that in most cases of sepsis and puerperal peritonitis the fault came to the door of either the accoucheur or some of the attendants. The general practitioner was too careless and allowed cases to become septic before he had any idea of it. The specialist was called usually when it was too late.

DR. H. J. GARRIGUES thought that as to localized purulent collections we were generally agreed that they should be opened wherever they could be gotten at most easily. But when it came to general peritonitis, in which a local collection of pus could not

be felt, he did not think we could tell whether it was purulent or not. He referred to a paper read by him some years ago in which he narrated thirteen cases treated by Clark's opium method, and seven recovered, or more than fifty per cent, whereas Dr. Grandin by operation had saved an even fifty per cent. Regarding the statement that it had become the custom to use the term celiotomy instead of laparotomy, he said he was not one who followed that custom. It was too late to substitute a new word for one which had been so long used, and which, even according to its critic who had sought to introduce the term celiotomy, applied to every other abdominal incision except that in the median line.

DR. H. J. BOLDT thought the peritonitis would have to be treated according to the variety. Local pus collections should certainly be opened. He thought it would be justifiable to do hysterectomy in cases in which the uterus was enlarged and flabby, the temperature running a characteristic course, etc. He said some of the speakers probably had Dr. Joseph Price in mind when they expressed doubt as to any operator being able to save fifty per cent, or even any considerable per cent, of cases of general purulent puerperal peritonitis by laparotomy. He was authorized by Dr. Price to say that he had made no such claim, and that those who attributed the statement to him had misunderstood him.

DR. GRANDIN said, in closing the discussion, that he was not sure he had been criticised, unless it were by Dr. von Ramdohr. If it were asserted that cases of general puerperal purulent peritonitis got well under alcohol, it was beyond his comprehension, and he was inclined to doubt the purulent part of the diagnosis. The whole subject was one which would still bear discussion, and it was to be hoped that general purulent peritonitis would yet yield to surgery or some treatment, but it was not easy to conceive how it would or could.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, February 5th, 1892.

W. W. JOHNSTON, M.D., *President, in the Chair.*

DR. J. T. JOHNSON presented some specimens of

OVARIAN TUMORS.

The first specimen was removed twelve days before. He was called to see the woman by Dr. D. H. Hazen, whose patient she was, and received the following history: She had had frequent

attacks of renal colic; lately had had what was supposed to be one of the same old attacks. She had been given four hypodermic injections of morphia to relieve the pain. When he saw her he was not certain as to the diagnosis. She had had an apparent miscarriage, but he suspected tubal or extra-uterine pregnancy. He called in Dr. H. D. Fry to aid him in the diagnosis. Dr. Fry did not believe there was any pregnancy, so he decided to operate, and removed the specimens presented. The tumor was closely adherent to the bladder and intestines, and was separated with difficulty. Convalescence has gone on satisfactorily. There was one peculiarity in the case: after one of her confinements she had had milk-leg. During the last few days the opposite leg had been affected in the same way.

The other specimen was removed three days before from a factory girl, who was somewhat embarrassed by the size of her abdomen. The tumor was attached by a very broad pedicle three or four inches wide. He removed both ovaries, as both were diseased.

DR. GEO. N. ACKER reported a case of

LABOR COMPLICATED WITH HEMORRHOIDS AND EXTENSIVE
LACERATION.

In the winter of 1890 I was engaged to attend Mrs. Q. in confinement. She was a small, delicate woman, æt. 35, subject to severe rheumatic attacks, but without any cardiac lesions. She had been married twice, but this was her first child, though she had had several miscarriages. She had her last menstrual period in December, 1890, and during the first two months suffered considerably from nausea, but under treatment became much better. In March, 1891, she had a severe attack of influenza, followed by bronchitis and rheumatism. She passed the summer away from the city, but returned the latter part of August on account of her large size and the fear that she had miscalculated the time and would be confined sooner than she expected. She could not move about with any comfort, but had a nurse from the 1st of September, who got her in a good condition by massage and attention to diet.

I was sent for, October 3d, with the welcome information that at last the long expected and desired labor had commenced. Severe bearing-down pains appeared about 10 p.m., and the os was slightly dilated, with the head presenting. About 3 p.m. the second stage commenced. The pains were short and strong and the child made slow progress. The A. C. E. mixture was given her during the night in small quantities, as she suffered a great deal from the pains. Toward morning she became very weak; the pulse 140, respiration rapid; was nervous and nauseated. The head was near the outlet, with the occiput anterior, and rotation about complete. Labor could have been

accomplished without assistance, yet on account of the very weak condition of the patient I did not think it advisable for her to remain in pain any longer, but considered that the time had arrived to apply the forceps, and sent for Dr. Gill, who was in the neighborhood, to assist me. The tissues were not soft and the parts appeared small, while the head was of a moderate size; therefore I took some time in extracting the child, as I feared laceration.

After the head was delivered there was some difficulty in getting the shoulder down. The child was somewhat asphyxiated and could not have lived much longer. The placenta was expressed by the Credé method, as there was considerable flow of blood. On examination there was found an extensive laceration involving the sphincter ani and posterior vaginal wall for several inches. When the finger was introduced into the rectum I was surprised to find how thin the tissues were between the rectum and vagina. There were deep tears of the vulva posteriorly on both sides, principally the left. All these tears were very ragged in appearance. There was a large amount of blood coming from the torn places, and several small jets of blood. The uterus contracted promptly and the os did not appear to be torn. The external parts presented a very bad appearance, for besides the lacerations there was a large vein (as large as my thumb) protruding through the tear on the right side, and the anal region was a large mass of piles. These had caused her a great deal of trouble for some months before this. During the labor they had become much enlarged, and remained so for some days afterward. These, in connection with the nature and extent of the laceration, rendered it difficult to bring the parts together. There were four sutures put in the median tear and two in those on the left side. These served to stop the flow of blood. The vagina was ordered to be syringed out twice daily with listerine and water, and afterward the torn places to be dusted freely with iodoform. This was continued several weeks. She was so exhausted that it was not thought advisable to fatigue or worry her by changing clothes, etc., and she was left quiet until evening, when she was washed and dressed and made as comfortable as possible. The respirations were shallow and rapid, and the pulse could hardly be felt. She was nauseated. During the day she was calling for ice every few minutes. A few teaspoonfuls of milk punch were given every half-hour. She could not sleep. 10 p.m.: pulse 140, temperature 100.7°. October 5th: Morning, temperature 100°, pulse 130; evening, temperature 101°, pulse 130. Did not sleep well during the night. Was very thirsty all day. Vomited several times. Had a constant pain and drawing feeling at the rectum. The tissues were much swollen and piles hard. October 6th: Condition about same; pulse stronger. October 7th: 8 a.m., temperature 98.2°, pulse 100; 2 p.m., temperature 100°, pulse 100; 6 p.m.,

temperature 101.8° , pulse 105; 10 P.M., temperature 101.2° , pulse 105. Feels somewhat stronger, but is yet nervous and restless; can take more food, but becomes nauseated at times. October 8th: 10 A.M., temperature 101.8° , pulse 105; 6 P.M., temperature 100.8° , pulse 110. The vein was hard and dark; opened it and removed a large mass of coagulated blood. This relieved her of some pains. Applications have been made to the hemorrhoids, and they have become smaller and trouble her less. October 9th: 10 A.M., temperature 100° , pulse 105; 6 P.M., temperature 101° , pulse 120. Removed some of the sutures in the perineum, which had torn through; applied a twenty-grain solution of nitrate of silver, and repeated the same every other day for several weeks. The listerine solution and iodoform were also kept up twice daily.

She improved daily. Appetite and digestion became better. Bowels open; tongue clean. Slept well and was less nervous. During the first few days she had pains in the abdomen, but warm applications and belladonna ointment relieved her. She had slight headaches and could not bear any light in the room. As she grew stronger these symptoms disappeared. I did not allow her to get out of bed until November, and then she was kept quiet for several weeks. At present she appears in good health. She has good control of the sphincter. It will be necessary to operate on the perineum at the anus, for, on account of the hemorrhoids, this part did not heal as well as I desired. It does not occasion her much discomfort at the present time.

There are several points in this case that can be discussed:

1. Whether I waited too long before applying the forceps? My object in delaying was that I thought that a natural delivery would be better for the mother, and, as the child appeared to be making progress, expected the end to come at any time.

2. Was my treatment of the large protruding vein a proper one? I was not willing to open it and run the risk of a large hemorrhage, for it would have been difficult to have applied pressure.

3. In regard to the treatment of the laceration, should I have performed a second operation on the perineum when I saw that the suture would not hold? I thought that by stimulating the tissues I could build the parts up by granulation and thus obviate another operation. Some years ago I delivered Mrs. A., æt. 25, primipara, of a large female child. The labor was an easy one, and everything went on as well as could be expected. I found a deep perineal tear and several lateral ones. She refused to have any sutures put in, although I advised her to have it done and insisted upon doing it. But she was a determined young woman and had her way. Frequent washes of a carbolic acid solution were made, and after several days the parts were touched daily with a twenty-grain solution of nitrate of silver. The parts united kindly and the places filled up by granula-

tion. Since then I have attended her through three confinements, and she has not had any further trouble with the perineum.

DR. GEORGE BYRD HARRISON, in opening the discussion, said that he was not prepared to go very deeply into the subject, as he had only been notified a day or two previously that he would be expected to open the discussion. Laceration was an extensive subject. He had had no personal experience with that accident. In twelve years' practice in Washington he had not had a single case of ruptured perineum, neither had he used forceps or ergot in the second stage of labor, nor had he lost a mother or a child; neither had fever occurred during the puerperium, except in one case, and that was due to causes clearly non-septic. Several times he had felt inclined to use forceps, but had been discouraged by his consultants. He had no reason to regret having omitted to use them. As to hemorrhoids, he thought they should be treated during gestation. In regard to their liability to produce hemorrhage during labor, he knew of no well-authenticated case. They were more liable to cause complications during the puerperium. Bearing upon the general subject, he referred to Barton Hurst's case of high temperature which was reduced by unloading the bowel.

DR. W. P. CARR said Dr. Acker's paper presented three propositions. The first—Should forceps have been used sooner?—was rather difficult to answer, as their application depended entirely upon the condition of things. He was astonished to hear men say that they got along without forceps. He had used them in the first labor case he ever attended, and out of one hundred and twenty-five cases had used them fifty times, and had had no occasion to regret it. He would use forceps to relieve the woman of pain, and not to shorten the time of his attendance upon the case. Second, as to the treatment of the large protruding vein, he thought Dr. Acker was right. As to the third proposition—Should the laceration have been immediately treated?—considering the complications, he thought not. He would have waited and restored the perineum by secondary operation.

DR. ACKER said that Dr. Harrison brought out an interesting point as to the treatment of hemorrhoids during gestation. The large pile tumors were much in the way of restoring the perineum, and could they have been removed before labor, matters would have been much simplified. The protruding vein was much in the way also.

DR. H. D. FRY asked when the laceration of the perineum occurred. DR. ACKER replied, during the expulsion of the shoulders. DR. FRY, continuing, said that any attempt at treatment of hemorrhoids during gestation would be unavailing, because of congestion produced by pressure upon the blood vessels by the

gravid uterus. Many times the piles disappeared after delivery.

Dr. H. L. E. JOHNSON said that it was frequently overlooked that the head tore the perineum, and the idea that the shoulders did the mischief was generally fallacious. The principal damage was done by the head; only the integument was finally torn by the shoulders. He had had cases in which he had congratulated himself that the perineum was preserved, when upon examination later it was discovered that the mucous membrane and muscular tissues were torn through to the skin. In dispensary practice he had found the fascia of the floor of the perineum torn, producing rectocele, cystocele, prolapsus, and procidentia.

Dr. HARRISON said he was surprised to hear Dr. Fry say that no benefit was derived from treatment of hemorrhoids during pregnancy. He did not think the congestion produced by gestation would contra-indicate treatment, as congestion was *nil* after three months until just prior to the approach of labor.

Dr. CARR said the treatment of piles during pregnancy was palliative only. Nothing much was to be expected. Operative treatment was the only curative means, and this could not be done during pregnancy. In a case like that of Dr. Acker he would restore the perineum and operate on the piles at the same time.

Dr. ACKER, in closing, asked what was the best procedure when after primary operation the sutures tear out. He related a case in the practice of the late Dr. A. Y. P. Garnett: A lady some 40 years old had laceration of the perineum. The primary operation was a failure, the stitches tearing out. The doctor stimulated the parts with a solution of nitrate of silver (forty grains to one ounce) and got good results by granulation.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF CINCINNATI.

Meeting of November 23d, 1892.

The President, BYRON STANTON, M.D., in the Chair.

Dr. SIGMAR STARK read a paper entitled

THE RÔLE OF THE PESSARY IN THE CURE OF RETRODISPLACEMENT
OF THE UTERUS.¹

Dr. PALMER.—It requires a very good judgment to know when to use and when not to use a pessary. I am by no means prejudiced against the use of them, but I believe that now pes-

¹ See original article, p. 388.

saries can largely be dispensed with. Displacement of the uterus, whether downward, forward, backward, or even upward, is not really a disease, but only a secondary condition. All displacements are dependent upon four causes: first, increased bulk and weight, causing the uterus to descend, or become displaced forward or backward; second, relaxation of support; third, increased pressure from above; and fourth, increased traction from below. No one would think of attempting to treat a uterus displaced because of relaxation in support, or increased weight from above, or increased traction from below, by the methods useful for the relief of displacement caused by increased bulk and weight. We should rectify, as far as we can, any of the etiological factors, and, having done that, I am disposed to think that most displacements of the uterus, including posterior displacements, will be relieved of their morbid symptoms. In almost all displacements of the uterus there is an error in the circulation, as well as an error in place, and it is this error in circulation that creates the symptoms as well as the error in place. How many times have we seen this morbid condition, and how often we have seen marked displacement without any complaint whatsoever! A pessary should not be used until the conditions creating it or co-existing have been corrected as far as practicable. If there are adhesions, of course they are to be modified or removed. Generally pessaries relieve for the time being, and as soon as withdrawn the uterus falls back again into its faulty posture. Then they become palliative only, and not curative.

DR. E. W. MITCHELL.—The explanation offered by the doctor is new to me. I had always attributed the benefits to the relief of weight and pressure and the improvement in the circulation, as referred to by my esteemed teacher on this subject, Dr. Palmer; also, possibly to the fact alluded to in the paper, that the ligaments had, in the course of time, an opportunity to contract and support the organ better. And it is from this opportunity of the ligaments to improve in circulation, as well as a reduction in the weight of the organ itself, that improvement results in the rare cases in which there is any improvement.

DR. REAMY.—I think it perfectly legitimate for us to inquire what are the principal causes of displacement. It cannot be denied by anybody that the most powerful sustaining influence is the retaining power of the abdominal cavity. The normal uterus is held in its position by its ligaments, its relation to adjacent organs, by the areolar tissue of the organs, but mostly by the action of the diaphragm acting like a piston. If you will watch the uterus during breathing you cannot but see that the diaphragm assists very materially in keeping it in its position. Now, anything that interferes with that action is the primary and the greatest cause of uterine displacement. The next most important retaining factor is that which prevents the first movement of retroversion—the action of the ligaments. These are of

unstriped muscular tissue almost exclusively, and go from each horn, being inserted in the labia majora, and their action is to hold the uterus in its proper position, which under normal circumstances they are able to do. But when these become damaged, as by gestation or parturition, they fail to hold the uterus, and it is allowed to turn. The vesico-uterine ligaments play a rôle quite as important as the utero-sacral ligaments. They are composed of fascia, extend from the uterus to the bladder, are attached just at the juncture of the neck and body of the uterus, and their action is to prevent the uterus going too far backward. The utero-sacral ligaments contain uterine tissue, or tissue more like that of the cervix, and they may possibly be damaged in the process of involution, and when subinvolution exists in the uterus probably it also exists in these ligaments. These extend from the sacrum to the cervix, and their function is to prevent the cervix going forward.

Now, what is the first rôle of the pessary? In the first place, it goes up in the posterior fornix and relieves the prolapsus of the vagina, and, in the next place, it elongates the uterine end of the sacro uterine ligaments; it does not change the sacral ends, for they are fixed. In the next place, it raises the uterus and restores the piston action of the diaphragm in the breathing of the patient. It restores the physiological action and is more than mechanical. Next it lifts the organ up and straightens it, and allows proper nutrition, for often the trouble is caused more by faulty nutrition than by direct inflammation. That the pessary may effect a cure I have no more doubt than I have that quinine arrests intermittent fever. As Dr. Palmer has said, the number of cases cured is not large, and I have been unable to say that in a particular case the pessary will cure. I have had cases cured by it. By wearing a pessary that fitted, keeping the bowels regular, the general nutrition in good condition, the muscular system in its natural power, and the breathing powers complete, they have become completely cured, so they did not need to continue wearing the pessary. I have had cases of endometritis, where there was a dirty discharge, completely cured by the use of the pessary. The question is, "What rôle does the pessary play?" and how does it effect that cure? A cure may partly be accomplished by shortening the ligaments and holding the uterus backward, but this is the exception. I believe the way in which the pessary effects a cure is by holding the uterus up, allowing the nutrition to improve, allowing the ligaments to become normal, and last, but not least, it improves the power of the vagina. It must be remembered that firmness of the uterine walls goes largely to maintain the posture of the uterus against flexion, and the same is true to a slight degree of the vagina; and, just as almost every writer has said, as a crutch supports a limb and allows it to heal, so the pessary supports these until they regain their natural power.

In this connection I think it perfectly pertinent to say what kind of a pessary should be employed. The essayist has said a well-fitting pessary, which is very true. For the relief of certain conditions you would not use an Albert Smith pessary. The Cutter pessary, or, better still, the Thomas modification of the Cutter pessary, is better in some cases, for it goes in behind and sweeps anteriorly and posteriorly. In some cases the cup pessary is of advantage. Another kind is the ring pessary, which is carried in as far as possible, even with some force. This variety should be taken out every two or three weeks. The spring pessary, covered with German silver, is of advantage in certain cases. The Hodge pessary will relieve some cases where the Albert Smith pessary cannot be used or the Thomas modification. It is not by stretching the vagina, and staying in because it is too large to come out, that the pessary is of value. If you have the patient insert, every two or three days, in suppositories, a little alum, iodoform, or tannin and acetate of lead with a little butter, to which you can add a few drops of hydrochloric acid if you like, and let this pessary be taken out once in two or three weeks and the vagina washed out once in a while, you will find the case to be benefited. I sometimes use the suppositories before putting in the pessary.

Now just one word in a practical way. We all occasionally have patients come to us that have been in the hands of other physicians. The pessary may not have acted well in their cases, and in your case it acts well. There is no way you can injure a brother practitioner more than by saying the pessary did not fit. The patient may have been out of his hands some time, and the pessary may have fitted at the time it was introduced.

DR. STARK.—I did not attempt in the paper this evening to thoroughly discuss the subject presented, but only to bring out one point, mentioned by Dr. Reamy—whether the influence exercised by the pessary was due to its pressure upon the sacro-uterine ligament and the consequent inflammation induced in it. In speaking of the pathology I only touched on the relaxation of the sacro-uterine ligaments, and spoke of this as being due to a posterior perimetritis and a subinvolution of the muscular fibres in these folds. Possibly, as I mentioned, the massage treatment might induce a cure or the use of the faradic current benefit the patient. Dr. Reamy is inclined to hold to one of the earlier principles which I enunciated in my paper—viz., considering the retrodisplacements as due to a faulty state of all the tissues contributing to the supporting power. By that I mean to include the suction force produced by the diaphragm. The sacro-uterine ligament is the main one to prevent retroversion, and is *the* main ligament; and I believe attempts to restore the sacro-uterine ligament to a normal state will bring about a better result than attempts upon other tissues. There is no doubt in my mind that the round ligaments have a great influence in that

direction, but I do not believe their influence is to be compared with the influence of the sacro-uterine ligaments. The operations upon the round ligaments have done nicely for a time, but I do not think their influence has been permanent. The operations recently advised are too recent to have stood the test. I have tried to explain the influence of the pessary upon the sacro-uterine ligaments as being due to the same causes we are now trying to bring about by operative procedure. I have tried shortening the uterine ligaments. I have also tried abdominal hysteropexy and the Wylie operation.

I do not deny that other tissues have an influence in supporting the uterus in its position, but the sacro-uterine ligament is the main agent. In acute and subacute inflammations the amount of inflammatory infiltration seriously interferes with the nutrition of the part, and naturally this condition is followed by atrophy and also loss of elasticity; but in chronic inflammations of the parts we have really developed a state resembling callus. The parts are being rubbed upon all the time. Nutrition is stimulated, and for that reason the volume of the ligaments is increased and their strength is increased.

DR. E. W. MITCHELL read a paper on

RIGIDITY OF THE OS UTERI.¹

DR. EDWIN RICKETTS.—When doing obstetrical work I have made it a rule to give chloroform whenever the patient was suffering to any great extent, whatever stage of labor the patient was in, and I have had many a rigid os yield when putting the patient under chloroform. In my earlier work I gave chloral, but I have been better satisfied with the use of chloroform. I have given chloroform two hundred and fifty or three hundred times, and I never saw any bad effect on the mother or child.

DR. PALMER.—I am in the habit of trying to frame in my mind the differential diagnosis in every case of rigid cervix, and as to whether it is functional or organic. I think one can do this. Of course if there is an organic lesion there is an organic disturbance, but there is usually a functional disturbance without organic change. These rigid uteri usually exist in nervous women who cannot bear much pain. The cervix becomes rigid, labor is delayed, and the uterus does not act properly because there is an improper development of the muscles of the body. In these cases, where pregnancy follows, I generally depend upon three remedies. First, hot water vaginal injection. I think a douche of this character makes the parts more soft and also tends to relaxation of the rigid cervix. I was in the habit of administering chloral and then gelsemium in five- or six-drop doses every half-hour or hour, but I finally settled down to the

¹ See original article, p. 407.

use of chloroform, and for the last ten years have depended almost exclusively on chloroform in the first stage of labor. Having used the vaginal douche, I do not use chloral, but sometimes morphia or atropia in hypodermic injections, and I have found them to do good in some instances. If this does not do I administer chloroform by inhalation, more frequently in the first stage than in the second stage of labor. I sometimes give it until the production of partial anesthesia, and I have not had a case of this kind where it did not cause speedy relaxation of the cervix. By these remedies I have been enabled to control these rigid cervixes. I have not made incision of the cervix. I consider chloroform by inhalation the best remedy.

THE PRESIDENT.—I agree most fully with the essayist, especially in giving preference to chloral over chloroform in the relief of difficulties in the first stage of labor. I very seldom use chloroform in the first stage, but reserve it for the second stage. I have used warm injections, and occasionally injections of morphia, but usually only when the pains were weak and were exhausting the patient without accomplishing much. I have generally been agreeably surprised afterward, when the uterine contractions returned, by the rapidity with which dilatation was effected. I believe morphia acts indirectly by giving the patient rest, and after this dilatation is more rapid. I have never resorted to surgical means for relieving this condition, for I have never seen a case which seemed to call for this treatment. I think the difficulty is very often caused by some malposition of the fetus, which, if it can be removed, will assist in the delivery. Very frequently it is due to rupture of the membranes; and, in this case, if some presenting part will act in the same mechanical way as the bag of waters, the dilatation will be effected more rapidly. The cases in which I have experienced the most trouble are those of malposition, and in a recent case, a breech presentation, the patient was in labor many hours before the breech could come down. In this case chloral alone was used, and chloroform not used until complete dilatation. The forceps was first applied to the breech and afterward to the head. I have not tried belladonna or the injection of opium in these cases.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Wednesday, October 5th, 1892.

J. WATT BLACK, M.D., *President, in the Chair.*

The following specimens were shown: 1. DR. McADAM ECCLES: Distention of vagina and uterus with muco-puriform fluid, accompanied by dilatation of bladder and ureters from

pressure in a child 7 weeks old. 2. Dr. RUTHERFORD: Pelvis (with bladder, uterus, and rectum *in situ*) of a cat which died two hours after giving birth to five large kittens. 3. Dr. ARMAND ROUTH: Uterus ruptured during parturition.

A paper by Dr. CULLINGWORTH was read on

THE VALUE OF ABDOMINAL SECTION IN CERTAIN CASES OF
PELVIC PERITONITIS, BASED ON A PERSONAL
EXPERIENCE OF FIFTY CASES.

The question considered in this paper is whether surgical interference is or is not frequently called for in cases of pelvic peritonitis. The author answers this question in the affirmative, and supports his opinion by a detailed record of fifty cases in which he has himself operated. The paper is accompanied with a table showing for each case the symptoms, the physical signs, the diagnosis, the actual condition disclosed at the operation, the nature of the operation performed, and the results, immediate and (where possible) remote. The cases are arranged in the order of their occurrence, their classification being reserved for the concluding part of the paper. This method seems to be the best suited for showing the gradual development of the author's present views and practice, and at the same time serves to emphasize the fact that a correct classification can only be made after the diagnosis has been tested by actual inspection of the diseased parts.

The cases include the whole of the author's experience of the operation up to the end of February, 1891, and are classified as follows:

Suppurating salpingitis.....	20
Non suppurating salpingitis, including six cases complicated with suppurating ovarian cyst.....	12
Tubercular disease of Fallopian tubes	2
Pelvic abscess, seat undetermined.....	3
Pedunculated retroperitoneal cyst, with abscesses in walls	1
Tubercular abscess in abdominal wall, with masses in pelvis (tuber- cular glands) and miliary tubercle of peritoneum.	1
Hematocele.....	2
Hematosalpinx with hematocele	3
Hematoma of broad ligament.....	1
Broad-ligament cysts:	
(a) With ovaritis, 2 }	
(b) With hydrosalpinx, 1 }	3
Encysted peritonitic effusion ..	1
Retroflexed uterus with fibroids	1
	<hr/> 50

Pelvic peritonitis was common to all the cases except the last-named, in which an erroneous diagnosis was made.

The cases of suppurating salpingitis are subdivided as follows:

(a) With occlusion (pyosalpinx).....	5
(b) With distal end open	2
(c) With suppurative disease of the ovary.....	1
(d) With a direct communication between the tube and a suppurating cyst of the adjacent ovary (suppurating tubo-ovarian cyst),	6
(e) With non-suppurating cystic ovary	1
(f) With suppurating hematocele.....	1
(g) With hydrosalpinx.....	2
(h) With intraperitoneal abscess.....	2
	<hr/>
	20

The cases of non-suppurating salpingitis are subdivided as follows :

(a) Uncomplicated cases.....	2
(b) With suppurating ovarian cyst.....	6
(c) With non-suppurating ovarian cyst	2
(d) With hematosalpinx and hemorrhagic ovarian cyst	1
(e) With double hematocele	1
	<hr/>
	12

Pelvic suppuration was present in thirty cases, or sixty per cent. It occurred in the Fallopian tube alone in thirteen cases, in the ovary alone in six cases, in both tube and ovary in seven cases (in six of which tube and ovary were in direct communication), while in the remaining four cases the seat of suppuration was either not precisely determined or did not involve either the tube or the ovary. There was strong presumptive evidence of gonorrhea in a large proportion of the cases, and in four cases the proof seemed complete. Nine of the cases died, a mortality of eighteen per cent. Seven of the deaths were due to peritonitis, probably septic, one to acute nephritis, and one to collapse on the eleventh day. Of the fatal cases one was tubercular disease of the tubes, two were purulent salpingitis, one was double salpingitis with old hemorrhage, two were suppurating tubo-ovarian cysts, one was retroperitoneal suppurating cyst, two were old peritonitis with serous cysts of broad ligament. As experience increased, the mortality became sensibly diminished. Hemorrhage, to a greater or less extent, existed in twelve of the thirty-two cases of salpingitis. In five cases there was amenorrhea, in three dysmenorrhea, whilst in twelve the menstrual function was undisturbed. In sixteen cases the removal of the appendages was complete, in twenty-three partial. Of the former, fifteen recovered; of the latter, seventeen. The peritoneum was flushed in twenty-two cases, of which eighteen recovered. Drainage was employed in forty-seven out of the fifty cases. In two cases a fecal fistula formed, which in each instance healed spontaneously. In five cases the patients complained, some time after the operation, of more or less persistent pain. A sinus existed in six of the cases when the patients left the hospital; in two of these it had not healed when the patients were last seen. In four cases a hernia has occurred in the line of incision. Attention is called

to the unreliability of the temperature as a sign of the existence of pelvic suppuration, the temperature before operation having been absolutely normal in twelve of the thirty cases in which suppuration was present.

In the course of the remarks appended to each case the following incidental propositions are laid down, either directly or by inference:

1. Recurrent attacks of pelvic peritonitis in the female ought always to lead to a strong suspicion of the existence of chronic disease of the uterine appendages, and to careful bimanual examination.

2. Purulent collections in the pelvis are particularly apt to set up recurrent peritonitis, and are more common than is usually supposed.

3. Where distinct swellings are found in the posterior quarters of the pelvis, in connection with recurrent attacks of pelvic peritonitis, surgical relief is usually indicated, and, generally speaking, the sooner such relief is afforded the better.

4. Purulent inflammation of the mucous membrane of the Fallopian tube differs from purulent inflammation of other mucous membranes in the absence, owing to the anatomical situation of the Fallopian tubes, of a natural outlet for the pus. A very slight amount of swelling of the mucous membrane suffices to block the tube at its uterine end, and if pus be present in the tube it must then either remain pent up in the tube, or be poured out through the fimbriated end into the peritoneum, in either case becoming a source of danger.

5. Salpingitis being a painless affection, the wall of a pyosalpinx may be on the point of perforation before an acute attack of peritonitis gives warning of the presence of serious disease.

6. It is safer to attack cases of pelvic suppuration from above than from below.

7. Suppurating tubo-ovarian cysts are usually the result of ulceration on the tubal side of the adhesion between tube and ovary, but in exceptional cases result from ulceration on the ovarian side.

8. The immediate results are more satisfactory after complete than after partial operations.

9. One of the chief risks in the operation for the separation and removal of inflamed tubes is the liability to mistake thickened and adherent intestine for diseased tube. The way to avoid error is to trace the tube from its uterine end outward.

10. The exceptional instances in which pain persists after operation for gross lesions of the uterine appendages are generally to be explained either by omental or intestinal adhesions, or by the coexistence with the actual disease of a neurotic condition, of which the pelvic pain is a mere local expression.

11. Tubal disease in the virgin is generally, if not always, tubercular.

12. Hydrosalpinx, in the great majority of cases, is merely a form of retention cyst, due to occlusion of the distal end of the tube from without.

13. Simple collections of serum, both large and small, are apt to form beneath the peritoneum covering the tube and broad ligament in chronic cases of pelvic inflammation, especially in those of very long standing. Probably the best treatment of these cysts, after exposing them and making certain of the diagnosis by abdominal section, is simple puncture and evacuation, the risk of removal being, in the author's experience, out of proportion to their importance.

14. Hematosalpinx, though no doubt due, in the majority of cases, to tubal gestation with apoplexy of the ovum, is sometimes an incident in the course of a chronic salpingitis. In these exceptional cases the walls of the distended tube, instead of being attenuated by the distention, as Bland Sutton has shown them to be in tubal gestation, are thickened by inflammatory deposits.

DR. JOHN WILLIAMS said that he felt personally indebted to Dr. Cullingworth for bringing this paper before the Society, for although he differed widely from Dr. Cullingworth both in conclusions and in practice, he believed that the discussion of the paper would help to place the practice of opening the abdomen for pelvic disease on a sounder and more reasonable basis than that on which it rests at present. The first difference he had with Dr. Cullingworth was as to the title of the paper. He thought the title was misleading; for on examining the cases he found that twenty-four of the fifty were cases of ovarian or other cysts which were simple, inflamed, or suppurating, and with regard to the propriety of the removal of these there were no two opinions; in these cases the pelvic inflammation may have been independent of the new growth, although it was well known that inflammation was a very frequent consequence of the presence of cystic disease in the pelvis. Then, again, there were six cases of pelvic abscess in which the only reasonable plan of treatment was to open them, let out the pus, and drain them. It might be a matter of opinion whether the opening should be made from the vagina or through the abdominal wall. In some cases the way through the vagina would probably have been better, while in others the abdominal method would be preferable. There were, moreover, ten cases of hematocele, one with ruptured cyst of the broad ligament and one suppurating, and one case of hematoma of the broad ligament; the case in which suppuration had occurred, all will agree, should have been treated like an abscess, but it is probable that the other nine would have got well without operative interference, for death

from hematocele is extremely rare. Dr. Williams had only seen two such. There were five apparently uncomplicated cases of pyosalpinx and seven cases of salpingitis or hydrosalpinx. Two cases operated upon were tubercular disease of the tubes; he did not think that operation was justifiable in cases of this disease, and especially where tubercle is found in other organs. He had an observation to make with regard to the result. The mortality was high, but he did not think it was higher than the mortality from these operations was throughout the country generally, although in a few hands it was less. The cases, or many of them, presented great difficulties to the operator, and it was in such cases that the mortality was high in skilled hands. He had pointed out that skill in operating favored a low mortality, and that one great secret of a very low mortality was operating upon cases in a condition as near that of health as possible. There was a mortality which necessarily arose from the difficulties of the operation, and this mortality was eliminated when operations of this kind were undertaken for trivial deviations from health. When considering the mortality of the operation, the mortality from the disease should be borne in mind. He had seen two cases only of death from ruptured tubes or abscesses, and he calculated that, with a mortality of eighteen per cent, the mortality of the operation was several hundred times greater than that of the disease. Then as to the permanent result: Were the cases operated upon cured? Nine died after the operation, and one of cancer of the stomach twelve months after the operation. This left forty to be accounted for. Of fourteen only of these was anything known after the lapse of twelve months after the operation. Of eight there was no account at all after they left the hospital. This left thirty-two. It was impossible to trace all patients operated upon in a place like London and under a Government such as ours: this could only be done where every one was under police supervision, as in Germany, and Dr. Williams knew of no statistics of any value on the permanent result of removal of the appendages, except those of Schmalfuss. Those of English operators were absolutely worthless because of the impossibility of following the cases. Of the thirty-two operated upon by Dr. Cullingworth, and subsequently traced at all, five suffered pain of a more or less permanent character, six had sinuses for a longer or shorter interval, four had hernia, and two required a second operation. That meant that in about half the cases more or less suffering was present after the operation. In so far as he could gather from the most reliable statistics, about thirty per cent of patients from whom diseased appendages were removed were cured by the operation, many more were benefited and cured by time and other treatment, while the rest continued to suffer.

MR. ALBAN DORAN considered that it was good surgery to insure the escape of pus and the other products of inflammation,

and that, in so far as that object was gained, Dr. Cullingworth's practice was sound. He noted four cases as typical instances of good surgery; abscesses were opened or serous effusions liberated, and the patients recovered without mutilation. Parametric abscesses required similar treatment. It was not sufficient to make a mere puncture. A free incision should be made through an abscess which pointed anteriorly. The cavity should be washed out, and then explored as carefully as the peritoneal cavity is explored in an ordinary abdominal section. Then there would be no fear of leaving deeper collections of pus unopened. He himself treated suppurative parametritis as a matter for the operating table, and not for mere puncturing and poulticing. In a recent case, where the appendages and parametrium were inflamed, he left the tubes and ovaries alone after free opening of abscesses. Recovery was perfect, all local signs of tubo-ovarian disease steadily disappearing. When pus was discharging from the rectum the fistulous tract closed of itself when the abscess was well opened from the abdominal aspect.

In cases where a cyst opening into the rectum was removed, it would be interesting to know how the operator avoided damage to the rectum and fecal fistula. Dr. Cullingworth overlooked one cause of persistence of pain after removal of the appendages. The stump was usually more or less unhealthy, like the parts cut away, and the ligature might cause much irritation. The stump of a true ovarian tumor, it must be remembered, was usually made up of tissue free from inflammatory changes, hence it bore ligature well. When an abscess was opened without removal of appendages, then, if other parts were healthy at the time, recovery was very complete; no stump and no ligature remained behind.

Mr. Doran then referred to MM. Péan's and Ségond's practice of vaginal hysterectomy for the cure of pelvic suppuration. British surgeons would hardly adopt that operation. The patients often recovered because the wholesale cutting allowed the free escape of pus. Amputation of the thigh for hip-joint disease might also cure the patient by allowing of the free escape of pus. In both cases good surgery demanded the same object by other means which did not include perilous mutilation. The French operators asserted that it was dangerous to remove the ovaries and leave the uterus, whilst when the uterus was removed even inflamed appendages underwent atrophy. Grammaticati, however, had found from after-histories¹ that the appendages did not atrophy under these circumstances.

Mr. Doran urged that when the operator found that the tube and ovary were merely bound down by adhesions, they should be set free, but never removed. In five cases where Mr. Doran had only separated adhesions, complete cure from pain had followed; in one other case, where he removed the appendages on one

¹ British Medical Journal, October 1st, 1892, Epitome, p. 55.

side and liberated their fellow from adhesions, the patient afterward bore children. Drainage was good in these conservative cases, as it insured the escape of the products of inflammation. He noted how often Dr. Cullingworth used the drainage tube, according to the tables. This practice was probably more justifiable and important than might at first appear. As far as Dr. Cullingworth's practice harmonized with the simplest principles of general surgery as above explained, so far would it abide and become established.

DR. CHAMPNEYS shared in the feelings of other speakers who had objected to the title of the paper. Pelvic peritonitis was a complication of a very large number of known diseases, and he thought that it was evident that a good many of these were capable of diagnosis, and had, indeed, been diagnosed before operation; among these were ovarian tumors, tubo-ovarian cysts, and hematoceles. He thought it was of some importance to point this out, because one of the chief objects of the paper was to show that abdominal section was often called for in pelvic peritonitis. In the ordinary sense of the term this was not the case, nor did the cases in the paper bear out that view. But if the heading of the paper were retained, he would ask who, in that room, had ever seen nine deaths from pelvic peritonitis, or even four deaths (the number of fatal cases after operation in the paper and appendix respectively)? Pelvic peritonitis was one of the commonest of all affections of the pelvis, and the cases were rarely dangerous to life. As regarded the duration of the disease before operation, he did not think that mere lapse of time proved the necessity for operation. Nothing was commoner than for patients to go about for months with this affection, or to be up, after a fashion, at home. When they came under observation the temperature was raised and there was pain, both of which ceased on strict confinement to bed, and might never return after proper medical treatment. As regarded the imminence of the escape of pus, noted in some cases in the paper, he did not think there was often any cause for alarm even if this took place: the pus escaped, an ordinary perimetritic abscess formed (often with great rapidity), and its evacuation was followed by cure. Hematocele very rarely justifies an operation. He did not agree with the opening of pelvic abscesses by abdominal section, except in rare cases. The advantage of abdominal section was the opportunity which it gave of exploring, but the risk to life was considerable. Drainage was in opposition to gravitation, and the risk of ventral hernia was great, for these cases necessarily required drainage sometimes for a long while. The advantage of improved antiseptics in abdominal opening was more theoretical than practical, for it was quite easy to get excellent surgical results in vaginal operations if we knew how to manage them. On the whole, then, he was still unconvinced that pelvic peritonitis required abdominal section except in rare and exceptional cases.

DR. PLAYFAIR said that none of the previous speakers seemed to him to have sufficiently recognized the great value of Dr. Cullingworth's paper. He could hardly recollect any previous paper he had heard in the Society in which more trouble had been taken, and in which cases had been more accurately and carefully recorded. The subject was one of immense importance, and it merited the most careful consideration and discussion. He felt that Dr. Cullingworth's conclusions were in many respects open to criticism, nor could he at all indorse many of them. As to the general principle that, when marked structural disease of the uterine appendages existed, connected with suppuration, a free exit should be given to the pus, and that such exit was often best obtained by laparotomy, every one nowadays would probably agree that was consistent with sound surgical principles. But it seemed to him that the author's surgical zeal carried him far beyond this, and that his axioms, if generally adopted, would lead to much rash, hazardous, and frequently unnecessary interference. He would object altogether, for example, to the acceptance of Dr. Cullingworth's third proposition, "Where distinct swellings are found in the posterior quarter of the pelvis, in connection with recurrent attacks of pelvic inflammation, surgical relief is usually indicated, and, generally speaking, the sooner such relief is afforded the better." Who is there, who has had sufficiently long experience of more conservative practice, who cannot call to mind case after case of recurrent pelvic peritonitis, accompanied by complete fixation of the uterus, with distinct swellings in the posterior quarter of the pelvis, which eventually completely recovered without surgical interference of any kind? Would it not be easy to conceive what disastrous results would follow if every youthful and ardent gynecologist said, Here is a swelling in the posterior quarter of the pelvis; Dr. Cullingworth says it must be at once dealt with, therefore I must open the abdomen? This may possibly be all very well with Dr. Cullingworth's surgical aptitude and experience, but even in his hands nearly one out of every five of his patients died. What would be the results in hands less skilled? So far from admitting that such cases should be interfered with soon rather than late, he believed that removal of diseased appendages should be considered a *dernier ressort* instead of a *premier ressort*, and should be looked upon as a confession of failure to cure. These cases rarely prove fatal *per se*; doubtless they led to a vast amount of pain, suffering, and broken health which very often fully justified operation, but they could generally wait until we were quite sure that Nature could not effect a cure. Once the operation is done it cannot be undone, and permanent and occasionally useless operations might be avoided. If, however, the history were sufficiently long, and the evidence of structural disease by examination were clear and distinct, then he fully admitted that laparotomy was a perfectly justifiable procedure, and

one which he himself constantly resorted to. No less than seven out of the fifty laparatomies were for hematocele; but is it not the fact that the vast majority of hematic effusions about the pelvis get well without any interference at all? Six more were in cases of non-suppurating salpingitis, a condition surely not beyond the hope of spontaneous cure. He trusted that in making these criticisms on his friend Dr. Cullingworth's paper, he was not going beyond the limits of legitimate discussion; but he felt it his duty to point out that, in his judgment, the conclusions arrived at were such as could not be safely admitted as correct. The only other point he had to mention was Dr. Cullingworth's extreme partiality for the drainage tube, which was used in forty-seven out of the fifty cases. In his own operations he hardly ever used it, and yet he certainly should have no fear of contrasting his results with those which Dr. Cullingworth had given. He felt quite confident that Dr. Cullingworth had resorted to drainage with an altogether needless frequency.

The discussion was adjourned to the November meeting.

Stated Meeting, November 27, 1892.

The President, J. WATT BLACK, M.D., in the Chair.

The following specimens were shown: (1) DR. CULLINGWORTH: Pyosalpinx. (2) DR. AUST-LAWRENCE: Ruptured tubal gestation. (3) DR. LEITH NAPIER: Microscopic sections from case of double oöphorectomy. (4) DR. GALABIN: Dermoid cyst.

The adjourned discussion on DR. CULLINGWORTH'S paper on

THE VALUE OF ABDOMINAL SECTION IN CERTAIN CASES OF RECURRENT PELVIC PERITONITIS

was opened by DR. GERVIS, who, after paying a tribute to the value of Dr. Cullingworth's gynecological work and the importance of his present paper, expressed the opinion that if the title of the paper were carefully considered the objections to it stated by some of the speakers at the last meeting would be much lessened, for operative measures were not proposed in *all* cases of pelvic peritonitis, but only in *certain* cases, and these would appear, from the third of the series of propositions Dr. Cullingworth had drafted, to be cases of *recurrent* peritonitis associated with "distinct swellings in the posterior quarter of the pelvis," and with this proposition he, Dr. Gervis, could not hesitate to agree. It was true that many of these cases were not fatal, but in many there was more than one element of risk, and in all there was much positive suffering and more or less permanent invalidism and disablement, for the relief of which ordinary medical measures were of little avail. Proposition 6, Dr. Gervis thought, held true of the majority of cases of pelvic suppur-

tion, but that not infrequently cases occurred which might be opened through the vagina. On proposition 10 Dr. Gervis would remark that, in addition to the causes of persistent pain after operation there noted, actual neuritis from presence of inflammatory deposits or spread of inflammation held a place, but that with regard to it the prognosis was favorable. He could not find in Dr. Cullingworth's paper the ten cases of hematocele to which Dr. Williams alluded at the last meeting. Indeed, he could scarcely make out Dr. Cullingworth's own number of five, and in these the hematocele did not always appear to be the determining cause of the operation; but on the general question of abdominal section in cases of hematocele he thought it was rarely called for, apart from the occurrence of suppuration. He was disposed to agree with Dr. Williams' remark with reference to operation in cases of salpingitis associated with tubercle. Unfortunately, however, the diagnosis of tubercular salpingitis was not always easy. As to some of the occasional sequelæ of the operation, to which reference had been made as seriously diminishing its remedial value, such as the persistence for a time of a sinus or the occurrence of a hernia in the line of incision, he thought that, although undoubtedly vexatious, they were hardly of sufficient importance to outweigh the great gain attained by the procedure in question.

DR. MAYO ROBSON, Leeds, had some experience in treating the diseases described in Dr. Cullingworth's paper, and thought it might be of interest to the Society if he took part in the discussion and gave his own conclusions. He found it difficult to discuss under the one heading of pelvic peritonitis so many different diseases as are included in the paper, and, as there can really be no difference of opinion as to the advisability of removing ovarian and other cysts associated with pelvic inflammation, his remarks do not apply to such; but he said it was often impossible to diagnose between such cysts and inflammatory affections of the appendages. He preferred to discuss the subject as a general surgeon on general principles, feeling sure that it was seldom necessary to depart widely from such in treating these cases of localized peritonitis. If we have an abscess in the neighborhood of the cecum we do not hesitate to open and drain it, lest it burst into the general peritoneal cavity; and why should there be any argument as to the propriety of dealing with a pelvic abscess on similar principles? If a patient suffer from recurrent attacks of perityphlitis, so-called, and the disease depend on recurring inflammation of the appendix vermiformis, we do not hesitate to remove the appendix. He had done this four times within the last year, not only converting chronic invalids into perfectly healthy persons, but removing from them the constant menace of an attack, more severe than usual, which might end fatally. Why should any one argue that a similar though larger collection of pus in the Fallopian tubes

should not be treated on the same principles? Some months ago he saw a young patient suffering from frequently recurring attacks of pain over the pylorus, associated with emaciation, and not yielding to medical treatment. He diagnosed adhesions over the pylorus following gastric ulcer, opened the abdomen, separated the adhesions, and the patient is now robust and well. Why should it be thought unwise in recurrent pelvic peritonitis to separate adhesions as a rule far more extensive than in the case named, and which not only produce pain for a week before and a week after each menstrual period, but which produce distress on walking, with pain on defecation and micturition, and, as a rule, dyspareunia and sterility? And in such cases, if absolute rest and general treatment have failed to relieve, and if the cause be discovered to be a removable one, why should we hesitate to remove it and relieve the patient from the life of a chronic invalid? Where life is endangered, surely no one can dispute that an operation which gives a good chance of cure, and which need have a mortality of not more than five-sevenths per cent, is unwise. But even where, as in the greater number of cases of recurrent pelvic peritonitis, chronic invalidism and suffering are perfectly certain, and danger may at any time arise, he thought the patient and her friends should join in the consultation and help in the decision. Reproach is then out of the question. He would prefer not to operate in cases of hematocele unless suppuration was indicated. He handed round a printed record of all his hospital and private cases, sixty-five in number, giving details as far as possible on Dr. Cullingworth's lines. There were two deaths referable to the operation (three per cent), a mortality which should dispose of one of the arguments used by the opponents of radical treatment in these cases. He had several times opened and drained pelvic abscesses through the peritoneum, but he agreed with Dr. Cullingworth that such a procedure is not so satisfactory as removing the abscess sac, which is frequently a dilated tube. He disagreed with those speakers who argued that such abscesses were best treated from the vagina. He agreed with all of Dr. Cullingworth's conclusions in the main, although probably differing in the details. For instance, he seldom flushes the peritoneal cavity and less frequently uses a drainage tube. He disagreed with those who argue that this class of cases very seldom end fatally if left to Nature, as he had known a number so to do. His operations were done after consultation with medical confrères and full explanation to patient and friends. Healthy organs were never removed, and if the disease was limited to one side the other appendage was not removed. He now never removed the ovaries for the cure of nervous symptoms. In all his cases gross organic disease was the reason for employing surgical measures, and he failed to see why sentiment should lead him to leave diseases which incapacitate and endanger life. Whether we be

dealing with a Fallopiian tube or a knee joint, our rôle as surgeons is to effect a cure; and if, after trying medical means, failure is proclaimed, then, he said, we can in all justice and with every show of reason adopt some radical and more certain methods.

MR. KNOWSLEY THORNTON said that he had studied Dr. Cullingworth's paper and tables carefully, and the result was that he would be entirely deterred from sanctioning or performing these operations. First, there was the terrible mortality of eighteen per cent, carrying one back to the early and unsuccessful days of abdominal surgery—a mortality which could not in any way be justified by the mortality of the diseases themselves when left alone. There was the extraordinary fact that nearly half the cases were incomplete; six had sinuses and four herniæ; both the latter, in spite of what Dr. Gervis had said to the contrary, were real miseries, often far greater sources of weakness and pain than the diseases which the operations were undertaken to cure. He would not dwell here upon the remarkably frequent use of the drainage tube and flushing, both, in his opinion, calculated, when used in this indiscriminate manner, to be sources of danger rather than of safety. So much for the opinion which he should have been bound to form if he had nothing but Dr. Cullingworth's paper and tables to guide him. He had, however, taken the trouble to go over his own case books, and found that he had in the whole of his practice, extending over nearly twenty years, operated eighty-seven times in this class of cases, with six deaths (about seven per cent); and it must be remembered that all his early work was done in times far different from the present, when the experience of many brilliant surgeons has taught, or ought to have taught, those who now begin this work how to operate in much greater safety for the patient. In the whole series he had only three incomplete cases, and his mortality would have been only half what it was if he had not resolutely completed three other cases, recognizing the fact that these operations, if only partial, would be far better for the patient's sake if they had never been attempted. He had begun these operations with the enthusiasm of the young surgeon. He now performed them less often, finding with increased experience the natural cures were far more common than he had supposed, and that the results of operation were not always so brilliant as was anticipated. Care in making the operation aseptic, and especially in protecting the transfixing ligatures from any septic contamination, and using very fine pure Chinese twist, he considered the chief elements of success. Sinuses and pain after operation he believed arose chiefly from septic ligatures. He had only had one persistent sinus, and that was in an early tubercular case, in which he used much thicker silk than he ever did now. He had had one or two fecal fistule, and one of his deaths was due to this misfortune; the others had healed spontaneously.

He believed that if only urgent and proper cases were operated upon the mortality would never fall much below a six-per-cent level. Were the diseases for which the operations were undertaken as fatal even as this? He doubted it. He had never seen a fatal case himself. Dr. J. Williams had seen two. Surely this was not much for their united experience. Then, again, how few fatal cases were ever published! He also would greatly discount recurrent peritonitis, which was called local peritonitis, which had no claim to be so named. He was frequently seeing cases said to be suffering from recurrent attacks of local pelvic peritonitis, but failed to recognize the symptoms; so that when he was told cases suffered from recurrent attacks of this disease, he was very sceptical, and he did not find many real cases of peritonitis in Dr. Cullingworth's list. He doubted the wisdom or justifiability of surgical interference in hematocele, unless it had suppurated, and he thought many collections of pus in the pelvis were much better opened per vaginam, where drainage was not against gravity. He criticised in some detail Dr. Cullingworth's concluding propositions, and asked on what grounds he said that salpingitis was a painless affection. The double or complete operation he was inclined to think more satisfactory in the long run in most cases, but some were quite successful with the appendages only removed on one side. He did not wish to pose as the opponent of all operative interference in these cases. Some undoubtedly demanded operation; some operations were, however, failures in point of cure. Others, and the majority, were, however, brilliantly successful. He would not, however, like it to go forth from the Obstetrical Society, and from the consideration of Dr. Cullingworth's paper, that Dr. Cullingworth's propositions were commended by all, or an encouragement would be given to young surgeons all over the country to try their prentice hands at these admittedly extremely difficult and dangerous operations, which were, in his opinion, already too common, and the general results in which did not justify the heavy mortality attending them, any more than the natural mortality of the diseases for which they were performed.

MR. JOHN W. TAYLOR (Birmingham) said he heartily agreed with the general tenor of every one of Dr. Cullingworth's propositions. Whether the classification of the cases on which they are founded was a wise one or not, he was glad to recognize that all of the cases under discussion were unmistakably inflammatory and all resulted in decided peritonitis. There was no question, in this controversy, of the removal of cirrhotic or cystic ovaries. The discussion was at least narrowed down to the question of removal when distinct peritonitic symptoms were or had been present, and on this question he was largely in agreement with the author. The only fault he had to find (if he might presume to say so) was that even now the propositions dealt with too wide a subject; that the cases which Dr. Cullingworth had

brought forward for discussion had only the clinical feature of peritonitis as their bond of union; and that one or two of the propositions as applied to the whole number of cases might be described as somewhat crude or rough. In his own experience he found that gonorrheal inflammatory diseases of the appendages is a special disease, due to a specific contagion, possessing many features in common with the inflammatory affections of the appendages, but quite distinct from them in its course and results. And here he would suggest to Dr. Cullingworth that virginity by no means precludes the possibility of this disease. Not a few of the cases of purulent vulvitis and vaginitis met with in early childhood are found to be due to accidental infection, and such cases may result in typical gonorrheal pyosalpinx years afterward when the primary disease has been lost sight of. If the disease, then, be a distinct and special one, equally distinct and definite should be the rules governing its treatment. It is to this disease (because it is a contagious one, and the uterus as a centre of contagion is always left behind) that the advice of complete removal of the appendages on both sides peculiarly applies. If operation be required at all in this disease it needs to be thorough. Though only one tube and ovary appear to be involved, if the cause be gonorrheal the appendages on both sides should, in his opinion, be removed. He had never known a tube and ovary left, in the operative treatment of this disease, without a more or less disappointing sequel. On the other hand, all inflammatory affections of the appendages are not gonorrheal. The naked-eye characters may be almost identical. There may be extensive adhesions, abscess of ovary, or a limited purulent peritonitis around the appendages (such cases are not uncommon after parturition, or may occur in the course of the exanthemata, or may result from an inflamed ovarian cyst or a suppurating hematocele); then he believed the nature of the case was, and its treatment should be, radically different. Here, if the inflammatory affection were limited to one side of the pelvis, there would be no need to remove the appendages of the opposite side. He found that such cases made good and permanent recoveries when the operation was strictly limited to the visible site of disease, many of the patients continuing fertile and becoming repeatedly pregnant after the operation for the original inflammatory attack and consequent peritonitis. This is a distinction which he believed to be insufficiently recognized and which has a most important bearing on our practice. He could not agree with those speakers who urged that operative treatment should be withheld and only used as a last resort. This would foster a practice which is always attended by bad results and surgical discredit. Those who have frequently to operate for the conditions under discussion are taught by experience when operation is required and when it is best undertaken. And although practice makes perfect, and cases which at first it seemed impossible to

do anything with become comparatively easy as time goes on, they could not allow, in justice to their patients and themselves, that only cases of last resort should have the benefit of their skill. His own practice on diagnosing a case of acute or sub-acute tubal disease (unless there be special urgency) is to send the patient to bed for a fortnight or a month, giving bromides: if at the end of this time there is no improvement, an operation is usually necessary. The circumstances of the patient are sometimes of the first importance. The case of a wife, for example, who has contracted gonorrhoeal salpingitis through no fault of her own and is subsequently deserted by her husband, who struggles to maintain herself and children but loses situation after situation on account of recurrent attacks of peritonitis, calls for radical treatment and cure with no uncertain voice; on such a case he had operated yesterday, and he had great reason to hope that the operation would enable the patient to earn her own living and to keep herself and her children out of the work-house. If Dr. Cullingworth would allow him to say so, he thought by Dr. Cullingworth's operation the mortality would be considerably reduced as time went on. Acute pyosalpinx must always be dangerous, but the operative removal of the more chronic collections of pus should be almost uniformly successful. In his own hospital, where operations for these diseases were not infrequent, one of the operating staff has worked for upward of two years without a death, and another has a similar record for upward of one year. He had but little doubt but that from the practice of these two surgeons a list of fifty consecutive cases might be compiled, all of which have been successful. With Dr. Cullingworth's remarks regarding operative dangers and detail he entirely agreed. The rectum on the left side is a frequent source of danger and difficulty: it is usually involved in the adhesions, and its separation, as a structure not to be removed, from a hypertrophied tube and bag-like ovary is often very difficult. The fact that the permanent attachments of the rectum are posterior, while those of the ovary and tube are anterior, is of considerable help where the main adhesions to the back of the uterus have been broken down and separated. All of these cases where extensive adhesions are undone need drainage. Dr. Cullingworth's practice in this respect is, in his opinion, entirely to be commended.

DR. HEYWOOD SMITH said that some months ago Drs. Williams and Champneys had issued a quasi-authoritative manifesto wherein they feebly attempted to apply the brake to the advanced gynecology of the present day, and after the speech they had heard from Mr. Thornton they must reckon him as a third who upheld a retrogressive policy with regard to the subject under discussion. Mr. Thornton had referred to ventral hernia as of frequent occurrence and grave import, but such an accident did not often happen and was in no way to be weighed against the chronic

invalidism and pain that the operation was intended to obviate; and as to calling it an operation of "expediency," it was in most cases an operation of necessity. He entirely agreed with Dr. Cullingworth's sixth proposition, that "it is safer to attack cases of pelvic suppuration from above than below." Some of those who had attended the congress at Brussels had seen M. Ségond do Péan's operation on a case of ovarian abscess: he first of all removed the uterus "morcellement," and then proceeded to puncture the abscess, a method they had considered wholly unjustifiable. M. Ségond contended that the removal of the uterus caused the uterine appendages to dwindle; but they would require a large number of necropsies, after a long interval of time, before they would be in a position to prove such a statement. Then, again, with regard to Dr. Champneys' statement as to drainage per vaginam being more favorable owing to gravity, they must remember that when a woman was lying supine the drainage tube was not wholly in a position downward. Mr. Thornton had said but few patients died in these cases if left alone. He would like to know on what grounds Mr. Thornton made that most extraordinary statement.

DR. GRIFFITH wished to draw attention to the frequency with which some speakers referred to "gonorrheal" salpingitis, as if this were a cause easily ascertained; his experience being that it was neither easy nor common to obtain satisfactory evidence of the gonorrheal origin of pelvic inflammations, and that these most frequently occurred after abortion, labor, and various methods of intra-uterine treatment, especially by the use of intra-uterine pessaries and tents, in all of which the probable cause was a septic one.

MR. SKENE KEITH drew attention to the length of time which often elapsed before recovery was complete after these operations. Patients were frequently under the impression that after operation they would be well in a few weeks. If, however, they understood that it might be months before the return to health would be perfect, they would be more willing to try in the first place what rest would do. At the end of six months comparatively few of these operative cases were quite well, while at the end of two years the results would be found to be very satisfactory.

DR. CULLINGWORTH, in reply, thanked the Society for the consideration that had been given to his paper and the length of time that had been devoted to its discussion. Before answering the various speakers he wished to remind the Fellows that the discussion had necessarily taken place under disadvantageous circumstances. The chief value of the paper consisted in the full clinical and pathological details it contained of each of the fifty cases in the printed table; those details were not before them yet. The paper was much too long to be read *in extenso*, and had only been presented to the meeting in a greatly abbre-

viated form. It was next to impossible to give a satisfactory clinical picture of a case either in the form of a table or a summary. When his critics were put in possession of all the facts—as they would be shortly, for the Council had generously undertaken to publish the full text of the paper in the *Transactions*—they would find that many of their criticisms were founded on a misapprehension. The objections raised by Dr. Williams and others to the title of the paper had already been met, to a certain extent, by Dr. Gervis. He (Dr. Cullingworth) did not know any other title that would have been sufficiently distinctive on the one hand and sufficiently comprehensive on the other. Pelvic peritonitis was the one condition that was common to all the cases. The object of the paper was to show that underlying many cases of pelvic peritonitis, especially where the inflammation was recurrent, there was definite disease, which could only be properly dealt with by surgical means. The fact of recurrence showed persistent irritation, and the cases here presented went to prove that the source of irritation was often a deep-seated suppuration, either in the tube or ovary, or in both. The words “certain cases” in the title were intended to limit the discussion to those cases in which there was a definite swelling in one or both sides of the pelvis. It was in those only that he advocated and practised abdominal section. With regard to many of the operations having been performed for new growths, this was perfectly true, but it was not true that these were cases which every one would have recognized and operated upon. Of new growths in the sense of there being a clearly defined abdominal or pelvic tumor, there was none, and in not a single instance had the presence of a new growth been previously suspected either by the patient herself or any one else. It was one of the surprises that a series of cases like this brought out that the source of the inflammation in many cases of recurrent pelvic peritonitis is suppuration of an unsuspected ovarian cyst. Such cases have hitherto been diagnosed and classified under the vague heading of pelvic abscess. When they came under observation the signs of tumor were masked by the matting and exudation due to the secondary peritonitis and by the coexistence of inflammatory disease of neighboring parts. The number of cases, in his own necessarily limited experience, in which growths had been found at the time of operation was a revelation to him. In many cases of pelvic peritonitis the swellings, instead of disappearing as the acute attack subsided, often continued to grow and give trouble. The explanation is that in these cases the lumps are not masses of inflammatory exudation, as they are popularly supposed to be, but new growths in a state of inflammation. Amongst the fifty cases tabulated there were no fewer than nineteen in which new growths were present. Of these, fourteen were suppurating ovarian cysts and five were ovarian cysts that had become inflamed, one of them in consequence of intra-cystic hemorrhage.

and the remaining four owing to inflammatory disease of neighboring parts. Of course, as experience was gained, one could often predict with an approximation to certainty that in the midst of a given pelvic swelling such and such a definite mass of disease would be found. In other words, these operations had added to our knowledge and improved our diagnosis of pelvic disease. He would refer any of the Fellows who were interested in this question to a series of six cases of abdominal section for peritonitis due to suppuration of previously unsuspected cysts of the ovary, which happened to be all under treatment at the same time, and which he had reported in the *Lancet* ("Mirror of Hospital Practice") for the first two weeks of the current year. There would be found in that series two remarkable cases in which the patient was suddenly seized with symptoms of acute pelvic peritonitis. It was determined to open the abdomen, in order to avert, if possible, a fatal termination which otherwise seemed inevitable. Neither of the patients knew anything of any tumor, yet on opening the abdomen each was found to have not one but two large suppurating ovarian cysts, one on each side of the body. The signs of their presence were indeed obscured by the inflammation and matting to which they had given rise, and the operation for their removal presented unusual difficulty. But once the removal accomplished and the immediate risks of the operation survived, these two women were quickly restored from a condition of extreme danger to one of almost perfect health and comfort. Dr. Williams had spoken of ten cases of hematocele; this was evidently an error, as there were not more than eight, even if a case of hematoma of the broad ligament were included. The eight cases were Nos. 11, 14, 22, 23, 31, 34, 44, and 47. In No. 11 a small hematocele had formed at the mouth of each Fallopian tube—the hemorrhage having obviously been a mere incident in the course of a chronic salpingitis. In No. 14 there was a small suppurating hematocele on one side connected with purulent salpingitis of the same side. No. 22 was a case in which an exploratory operation was performed for what was thought to be pelvic suppuration; the left broad ligament proved to be the seat of the swelling, the characters of which led to the diagnosis of a hematoma; the abdomen was therefore closed. The diagnosis was afterward confirmed by the disappearance of the swelling, and the patient did perfectly well. No. 23 was also a case of doubtful diagnosis; after missing two menstrual periods the patient had had uterine hemorrhage for three and a half months, and there was an oval swelling the size of an orange behind the uterus and left broad ligament. The swelling proved to be an old hematocele, probably the result of a tubal abortion. No. 31 was a case in which an exploratory incision was made on account of a pelvic swelling and almost complete disablement, persisting six months after the disappear-

ance of an unusually extensive hematocele: nothing was found except pelvic adhesions and the remains of the old hematocele. One of the ovaries was damaged during the separation of the adhesions and had to be removed. In the remarks appended to the report of this case he had acknowledged that the patient, who made an excellent recovery, would have done equally well without an operation. In No. 34 there was a hematosalpinx on one side and a hematocele on the other, the latter being due to hemorrhage into, and subsequent rupture of, a broad-ligament cyst. The blood was cleared out, the diseased parts removed, and the patient, who was exceedingly ill before the operation, made an excellent recovery. No. 44 was the case of a patient who had been ill for two years, and who, after improving greatly under a course of hospital treatment, was readmitted three months later; there was a pelvic swelling on the right side, and operative treatment was advised. The right tube was distended with blood clot and measured five and three-quarter inches in circumference; outside the tube there was a quantity of firm clot. There was some suppuration during convalescence, but the patient left the hospital in a month; three weeks later the sinus closed and recovery was complete. The last case, No. 47, was also a hematosalpinx, communicating with a small hematocele amongst old pelvic adhesions, in a patient the subject of tubal disease of six years' duration; she also made an excellent recovery. It would thus be seen that not one of the eight cases was a typical hematocele, or was operated upon under the supposition that a hematocele was present.

Much had been said by Dr. Williams and others about the mortality. The mortality of the first series of fifty cases was nine; in the second, mentioned in the postscript, fourteen. Dividing them into groups of twenty-five, the mortality was as follows: In the first group, seven; in the second, two; in the third, four; in the last, none. The mortality of the first twenty-five must be reasonably regarded as the result of inexperience, and that of the last seventy-five—viz., eight per cent—is representing his present mortality. In connection with this question of mortality it should be stated that of the fifty patients fifteen were so ill at the time of operation that it was evident to all who saw them that a fatal issue was rapidly approaching. Of these fifteen, four died. Of the other five patients who died four were totally incapacitated for work of any kind, and the fifth, though able to do light work, occasionally was laid aside by an attack of pelvic inflammation every few days. Dr. Williams had said that the mortality diminished as the operation came to be performed for conditions more nearly approaching those of health. He (Dr. Cullingworth) thought that the insinuation conveyed in this statement was unfair. It was not the case that his later and more successful operations

were undertaken for less serious conditions or were in any degree less complicated or less difficult than his earlier ones.¹

Dr. Williams had referred to a paper by Schmalfuss as containing the only reliable account with which he was acquainted of the proportion of cases in which pain persisted after these operations. He held in his hand a copy of Schmalfuss' paper: the title of it was: "Castration for Neuroses." The object of Hegar's operations there recorded had nothing in common with the object he (the speaker) had in view in the operations described in his paper. When an operation was undertaken for the relief of pain, irrespective of any obvious lesion, the operator must be prepared for disappointment. On the other hand, where there was obvious disease, extirpation of the source of inflammation invariably cured the patient, provided she survived the operation. The occurrence of a little subsequent pain no more constitutes a failure than does the occurrence of a shooting pain in the mamma after the removal of a cystic tumor of that organ. As a matter of fact, persistent pain had been met with in singularly few of his cases. In one it was clearly feigned, and in the rest the patients were of a distinctly neurotic character, and their improved general condition showed the pain to have no serious significance. The few instances of herniæ and unhealed sinuses occurred in cases where, from special circumstances, collections of matter were drained instead of being extirpated. In such cases herniæ were almost inevitable.

Dr. Williams had noted that two cases required a second operation. In both cases the fault lay, not with the operation, but with the operator. The cases were early ones, and he had not acquired the requisite boldness; hence the need for a second operation, which in each case cured the patient. He could not agree with Dr. Williams that an after-history of one year was insufficient to decide whether or not an operation of this kind had been successful. The cases selected by Dr. Williams for special comment presented difficulties only because the Fellows were not as yet in possession of the full record. He would not therefore, occupy the time of the meeting by going into them. The cases which Mr. Doran held up as the few examples in the list of really good surgery were just those of which he (Dr. Cullingworth) was not particularly proud. They were cases of simple evacuation and drainage of suppurating cavities where the source of suppuration was not removed. Such treatment involved prolonged suppuration; weeks or months of bed; an incomplete cure, owing to the impossibility under such circumstances of satisfactory healing of the abdominal wound; soon

¹ Dr. Williams, who was unable to be present at the adjourned discussion, has since assured me that he did not intend this remark to apply to my cases. I accept this disclaimer with much pleasure, but, as the remark has been made public, I think it right that my reply should have equal publicity.—C. J. C.

or later a hernial protrusion. He knew better now than to leave suppurating cysts stitched to the abdominal wall if they could possibly be removed in their entirety. Formidable adhesions did not frighten him as they once did. Mr. Doran expressed surprise that in Case 39, where there was a communication between the suppurating cyst and the rectum, separation and removal of the cyst were accomplished without the occurrence of a fecal fistula. If Mr. Doran would refer to Case 25, he would find the same good result followed a similarly bold procedure there; and he would also note, on referring to Case 48, that a communication with the vagina gave no further trouble after the removal of the adherent cyst. The fact was that such openings closed of their own accord, so to speak, as soon as the source of suppuration was removed. With regard to Péan's method of treating these cases by vaginal hysterectomy, which had been advocated by Ségond at the Brussels Congress, he entirely agreed with the objections Mr. Doran had indicated.

Notwithstanding Mr. Doran's cautious attitude in this discussion, he had not always spoken so uncertainly. In a paper published in the Transactions of the Medical Society of London (vol. xiv., 1891, p. 245) Mr. Doran wrote as follows: "Oöphorectomy" [by which name Mr. Doran persisted in speaking of this operation, although the removal of the ovaries, so far from constituting the operation, was not always an essential part of it] "is the best operation in a large class of chronic cases where subacute seizures occur frequently and at gradually shortening intervals, and where careful bimannual palpation proves the existence of a mass, usually tender, on one or both sides of the uterus. The tube and ovary are degenerate and useless; the more cystic they become the more discomfort they cause, and the more probably will they form adhesions to intestine, omentum, etc. Pyosalpinx, a not infrequent complication, is in itself a source of danger to the patient. The health suffers, the patient is crippled, and, if poor, incapacitated from earning her bread." He thought, after that, he might claim Mr. Doran as a supporter. The necessity of invoking the aid of gravitation in order to obtain efficient drainage was a notion that had long since been exploded, and he was surprised to hear Dr. Champneys advocating the treatment of pelvic suppuration per vaginam on that ground. Experience had abundantly proved that the force of intra-abdominal pressure was amply sufficient to drive all the fluid out of the abdomen as fast as it accumulated, if only a means of exit were provided. The fluids effused would pass up through the lower angle of the abdominal wound quite as readily as through the vaginal roof. As to the opening of pelvic abscesses from below, the proceeding was both dangerous and inefficient. It was far easier to keep the abdominal wound aseptic than to insure the asepticity of a wound in the vaginal roof or in the rectum. The inefficiency of the

method could be shown by reference to Cases 41 and 48. To Dr. Champneys' statement that pelvic peritonitis was rarely dangerous to life he listened with still greater amazement. Either Dr. Champneys was not talking about the same thing as he was, or had shut his eyes to facts.

Then Dr. Champneys said that a number of these cases were ordinary cases of pelvic abscess. If by that he meant abscesses in the connective tissue, he was mistaken; there was no such case in the list. If he meant pelvic suppuration of whatever kind, of course it was open to Dr. Champneys to adopt the vague name of pelvic abscess if he preferred it. He (Dr. Cullingworth) thought the phrase should be restricted to cases in which the source and seat of suppuration remained undiscovered. Most of Dr. Playfair's criticisms were based on a classified list of the various conditions found when the abdomen was opened. Such criticisms were easy enough. When Dr. Playfair came to read the full details he would be the first to acknowledge that in almost every case there were good grounds for operating. As to the too great readiness to operate, with which Dr. Playfair seemed disposed to charge him, he could not help thinking that if he had ever been destined to succumb to the operating mania he would have fallen a victim to it earlier in life. He was exceedingly glad to hear the remarks of Mr. Mayo Robson, for he had looked at the question from the point of view of a general surgeon, and had supported the contention of the paper as being in accord with ordinary surgical principles. Mr. Knowsley Thornton had expressed his disbelief in the painlessness of salpingitis. He had only to read the clinical records in the paper and he would see how invariably it happened that patients, who were proved by operation to have old-standing tubal inflammation, had been unconscious of any pelvic pain up to the time that secondary peritonitis occurred. The moment the inflammation spread from a mucous to a serous membrane pain became the most marked symptom. Turning to the excellent speech of Mr. J. W. Taylor, he was under the impression, as he listened, that he was telling the story of Case 14, so similar was that story to the one Mr. Taylor related.

Mr. Skene Keith seemed to doubt the frequency of such conditions as were described in the paper. All he could say was that he did not go out into the highways and hedges and compel them to come into St. Thomas'; and yet they were found there, as was proved by his paper, in great abundance. Such cases were believed to be rare, simply because they were not diagnosed. He desired, in conclusion, to challenge those who decried these operations to bring forward a series of fifty similar cases treated by other than operative measures, giving the full clinical history from beginning to end, and, where death occurred, an account of the conditions disclosed at the autopsy.

REVIEWS.

TUBO-PERITONEAL ECTOPIC GESTATION. By J. CLARENCE WEBSTER, B.A., M.D., M.R.C.P.Ed., Assistant to the Professor of Midwifery and Diseases of Women and Children in the University of Edinburgh. 4to, pp. 50. Illustrated by eleven lithographic plates in color. Published in Edinburgh and London by Young J. Pentland, and in Philadelphia by J. B. Lippincott Co.

RESEARCHES IN FEMALE PELVIC ANATOMY. By the same author and publishers. 4to, pp. 129. Twenty-six lithographic plates in color.

The first of these monographs gives a detailed account of an original research into the nature of a mixed variety of ectopic gestation, partly within the left Fallopian tube and partly within the peritoneal cavity. Such a variety has never before been described, and the author proposes for it the name "tubo-peritoneal." Frozen sections were made and supplemented by dissectional and microscopic examinations. The work takes up *seriatim* the classification of ectopic gestation and the clinical history, method of investigation, naked-eye sectional examination, naked-eye dissectional examination, microscopic examination, résumé of results, and concludes with a bibliography and index.

In the second volume the researches in the anatomy of the puerperal period are most valuable. Heretofore the descriptions of the anatomical changes in the pelvis during this period have been very imperfect and have been made from ordinary post-mortem and physical examinations. As the most important changes are those of altered relationship, it is necessary, in order to gain a clear and exact idea of the topography, to make use of the sectional method. At the time of the author's researches only three cadavera had been fully investigated by means of frozen sections, two of which (Barbour and Stratz) had deformed pelves, while the third (Barbour) died of sepsis. He describes here in detail the anatomical conditions found in the pelves of women who died of diseases causing no alteration in pelvic relationships, on the first, second, third, fourth, sixth, and fifteenth days of the puerperium, the methods employed being the same as those described in the case of ectopic gestation.

The plates in both volumes are beautifully executed, the type is clear, the margins broad, and the typographical work most excellent.

THE DISEASES AND DEFORMITIES OF THE FETUS. By J. W. BAL-LANTYNE, M.D., F.R.C.P.E., F.R.S.E., Lecturer on Diseases of Infancy and Childhood, Minto House School of Medicine, Edinburgh; Lecturer on Midwifery and Gynecology, Medical College for Women, Edinburgh, etc., etc. Vol. i., p. 252. With plates and other illustrations. Oliver & Boyd, Edinburgh, 1893.

This is the first work in which an attempt has been made to formulate a complete system of ante-natal pathology, and to discuss together at length both the diseases and the deformities of the fetus. The author is already well known from his numerous papers on various paediatric subjects, and has had unusual opportunities for the study and dissection of specimens of a large number of the principal varieties of the diseases and deformities of the fetus and its adnexa.

The present volume is occupied to a large extent by introductory matter, methods of investigation, classification, etc., and by a historical sketch of the subject of fetal diseases. It also discusses at length general fetal dropsy and congenital cystic elephantiasis.

It is stated in the preface that in the second volume the remaining idiopathic and some of the transmitted morbid states will be dealt with, and in the third volume the consideration of the diseases proper of the fetus will be brought to a conclusion, while the remainder of the work will be occupied with the deformities of the fetus.

HYGIENE DE LA GROSSESSE.—THE HYGIENE OF PREGNANCY.

By DR. ADOLPHE OLIVIER, ex-Interne of the Maternity Hospital in Paris; Chief of Obstetrical and Gynecological Department of the Paris Polyclinic; Foundation Member of the Obstetrical and Gynecological Society of Paris, etc. Pp. 340. Illustrated. J. B. Ballière et Fils, 19 Rue Hautefeuille, Paris.

This volume is intended as a manual of instruction to pregnant women, and contains a multitude of valuable directions and hints. In the first part, devoted to a consideration of the hygiene of pregnancy non-complicated by any disease, the author treats of the heating and ventilation of the house, diet, physical exercise, travelling, clothing, bathing, and preparation of the breasts.

The second portion of the book treats of the various complications of pregnancy, nausea and vomiting, constipation, troubles of the respiratory organs, of the circulatory and urinary system, of the genital organs, the nervous system, the skin, and the breast. Abdominal, uterine, and articular pains form the subject of one chapter, and the last is devoted to the hemorrhages of pregnancy.

Not only the pregnant woman, but the young practitioner

who undertakes to see her safely through the ordeal of labor, will find much of value in this book, which gives details not always to be found in the larger works upon the subject.

A. R.

CONGENITAL OBLITERATION OF THE BILE DUCTS. By JOHN THOMPSON, M.D., Fellow of the Royal College of Physicians of Edinburgh; Lecturer on Diseases of Children, School of Medicine, etc. Pp. 52, 8vo. With three plates. Oliver & Boyd, Edinburgh, 1892.

This monograph is a reprint from the pages of the *Edinburgh Medical Journal*, is a résumé of all previously recorded cases of this lesion, and concludes with the author's views concerning the etiology and pathology of these cases and an explanation of the causation of the various symptoms.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY. Vol. xvii., pp. 487. Wm. J. Dornan, Philadelphia, 1892.

Besides the many able papers read before the Society at its annual meeting in September of last year, which were published in full in the October and succeeding numbers of this JOURNAL, this volume contains the papers presented by the candidates elected to fellowship. These are: "Drainage after Pelvic Operations, as influenced by preliminary Curettage of the Uterus and Trendelenburg's Posture," by William R. Pryor; "The Prevention and Treatment of Puerperal Fever," by Laphorn Smith; "Rupture of the Uterus," by Malcolm McLean; "Cases of Abdominal Section," by H. R. Holmes; "Reopening the Abdomen for Acute Septic Peritonitis following Celiotomy, with report of a successful case," by J. Riddle Goffe; "Vaginal Hysterectomy, Colporrhaphy, and Colpo-perineorrhaphy for Procidencia of the Genital Organs in Women near and after the Menopause," by Beverly McMonagle; "Acute Catarrhal Salpingitis *versus* Appendicitis," by John M. Keating; "The Direction of the Incision in Episiotomy," with plates, by Robert L. Dickinson; "Accouchement Forcé in Placenta Previa," by Parks Ritchie; "Gynecological Observations in the Insane," by C. A. Kirkley; and "Tuberculosis of the Female Generative Organs," by Whitridge Williams.

THE JOHNS HOPKINS HOSPITAL REPORTS. Vol. iii., Nos. 1, 2, 3.

These numbers contain two remarkable papers by J. WHITRIDGE WILLIAMS. The first, on "Papillomatous Tumors of the Ovary," occupies eighty-four pages and is illustrated by several beautiful plates. It is a review of the literature of the subject and of original work done by the author. The second paper, on "Tuberculosis of the Female Generative Organs," was read before the American Gynecological Society. It is also a combination of the author's own observations with other work in the

same field, and presents the subject very completely. Both papers are worth careful study by those interested.

THE ANATOMY OF THE PERITONEUM. By FRANKLIN DEXTER, M.D., Assistant Demonstrator of Anatomy, College of Physicians and Surgeons (Columbia University), New York. 8vo, pp. 86. With 38 illustrations. D. Appleton & Co., New York, 1892.

There is no way of obtaining a clear idea of the complex relations of the peritoneum except through a knowledge of its development. In this little work Dr. Dexter shows the student clearly the various steps from the point in development when the alimentary canal is practically a simple tube, to the point where development is complete, each step being defined by a diagram in colors with its description.

A MANUAL OF OBSTETRICS. By A. F. A. KING, A.M., M.D., Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the Columbian University, Washington, D. C., etc. Fifth edition. 8vo, pp. 450. With 150 illustrations. Lea Brothers & Co., Philadelphia, 1892.

It is unnecessary to give any extended notice to the fifth edition of so classical a work as this of Dr. King. We need only state that it is kept fully abreast of the science and art of its subject, and maintains the reputation it has acquired in the past.

GYNECOLOGY. By G. W. BRATENAHIL, M.D., Assistant in Gynecology, Vanderbilt Clinic, New York; and SINCLAIR TOUTSEY, M.D., Assistant Surgeon, Out-patient Department, Roosevelt Hospital, New York. 12mo, pp. 210. With 85 illustrations.

OBSTETRICS. By CHARLES W. HOYT, M.D., House Physician at Nursery and Child's Hospital, New York. 12mo, pp. 190. 43 illustrations.

DISEASES OF CHILDREN. By C. ALEXANDER RHODES, M.D., Instructor in Diseases of Children, New York Post-Graduate Medical College. 12mo, pp. 159.

These are three numbers of the STUDENTS' QUIZ SERIES. They are edited by BERN. B. GALLAUDET, M.D., Demonstrator of Anatomy at the College of Physicians and Surgeons of New York, and Visiting Surgeon to Bellevue Hospital, New York, and are published in Philadelphia by Lea Brothers & Co., 1892. The text is, in the main, clear and accurate.

ABSTRACTS.

1. REVIEW OF THE RECENT LITERATURE OF PUERPERAL ECLAMPSIA. (a) GERDES (*Münchener medizinische Wochenschrift*, 1892, No. 22; *Centralblatt für Gynäkologie*, 1892, No. 20; *Deutsche medizinische Wochenschrift*, 1892, No. 26).—After discussing the various unsuccessful attempts of Blank and others to demonstrate the infectious nature of puerperal eclampsia, G. reports the results of a number of bacteriological investigations by himself, and states his conclusions. Plate cultures were made from the blood, lungs, liver, and kidneys of two women who died from eclampsia. Keeping these cultures in an incubator for twenty-four hours, colonies of bacteria had grown resembling the bacillus of chicken cholera. These bacilli readily stain in strong alkaline solutions of methylene blue. Inoculations with pure cultures produced in mice convulsions, a stadium soporosum, and death. In rats, guinea-pigs, rabbits, and pigeons similar symptoms were observed. He finally says: "Puerperal eclampsia is produced by a specific micro-organism found in the blood and various tissues of women suffering from this disease."

(b) HOFMEISTER (*Fortschritte der Medizin*, 1892, Nos. 22 and 23).—H. experimented with cultures of bacilli obtained from Gerdes, and pronounces that his (Gerdes') eclampsia bacilli are nothing else than the *Proteus vulgaris*, the bacterium of putrefaction.

(c) HÆGLER (*Centralblatt für Gynäkologie*, 1892, No. 51).—To prove or disprove the claims of Gerdes, the author subjected three cases of well-marked eclampsia (one of which terminated fatally) to a number of bacteriological experiments. The results of these are in brief the following: *Urine*.—In one case remained sterile; in a second case the *Streptococcus pyogenes albus* was found (this woman suffered from chronic nephritis). In the third case (fatal) repeated examinations showed a coccus resembling the *Diplococcus pneumoniae*. An autopsy four hours post mortem demonstrated this diplococcus also in the kidneys, endocardium, and peritoneal cavity. Upon the placental site numerous colonies of the *Proteus vulgaris* were found. The lungs, liver, spleen, and other tissues gave negative results. He writes that the results of his experiments are not in accordance with those obtained by Gerdes, and he does not believe in a bacteriological origin of eclampsia.

(d) FEHLING (*Centralblatt für Gynäkologie*, 1892, No. 51).—F. considers the theories of Doléris, Blank, Favre, Gerdes, and others, that eclampsia is caused by micro-organisms, not proven and improbable. The experiments of Gerdes, made

fourteen and twenty-three and a half hours post mortem (in summer), are opposed to the teachings of Koch and without scientific value. He further says: "Olshausen, Dührssen, and Gussierow have observed four hundred cases of eclampsia. In ninety-eight per cent of these albuminuria was present; therefore we do not require bacteriological theories to explain the etiology of puerperal eclampsia." Emptying of the uterus increases the functions of the kidneys and elimination of toxins from the blood; and he agrees with Dührssen, who advises rapid delivery as the best therapeutic measure.

(e) BÖDERLEIN (*Centralblatt für Gynäkologie*, 1893, No. 1).—D. reports his bacteriological investigations in eight cases of puerperal eclampsia. The blood, urine, and various tissues of both mothers and children were subjected to a number of carefully conducted experiments, all resulting negatively. The author agrees with Haegler and Hofmeister, and concludes that the Gerdes bacillus is not the cause of puerperal eclampsia.

(f) DÜHRSEN (*Archiv für Gynäkologie*, Bd. xxii. Heft 3, und Bd. xxii. Heft 1).—D. has written a most excellent and scholarly article upon this interesting subject. The paper contains much new and valuable information, and ought to be read in original or in a full translation. The most important points are the following: Blood intoxication (eclampsia hematogenes) is the most frequent cause of puerperal eclampsia. The blood then contains kreatin and kreatinin in considerable quantities. The elimination of these bodies is prevented or diminished by a simple nephritis of pregnancy (*Schwangerschaftsniere*), chronic nephritis, hydronephrosis, hyperemia of the kidneys, and a retention of urine caused by pressure upon the ureters. The kreatin and kreatinin are deposited in the cortical substance of the cerebrum, there exciting certain motoric centres capable of producing coma and convulsions (Landois). Excitability of the nervous system, especially of the nerves of the genital organs, and strong emotional disturbances, often add to the irritation produced by the altered condition of the blood. In rare cases a hyperæsthetic nervous system may in itself produce convulsive seizures by a reflex action upon the aforementioned coma and convulsion centres (eclampsia reflectoria).

In certain severe cases of eclampsia a fatty degeneration of the kidneys, heart, stomach mucous membrane, and a destruction of the red blood corpuscles, are present. The author has no explanation for these pathological changes, but he has found that they become intensified through protracted chloroform inhalation.

The gravity of the prognosis increases with each succeeding attack, yet a case may end fatally after but one or two convulsions. In these we generally find extensive blood changes, cerebral hemorrhage, or an embolic infarction. If the uterus is emptied the eclampsia will cease in 93.75 per cent of cases,

and he therefore urges delivery at the earliest possible moment. He says the results are more favorable in cases in which operative interference is practised, compared with those where labor is permitted to terminate spontaneously, and it is certainly to be expected that the mortality of puerperal eclampsia will much diminish if immediate delivery becomes the recognized therapeutic measure. To make this rapid emptying of the uterus possible, he advocates his deep incisions of the cervix. If the portio vaginalis is still intact, mechanical dilatation with Barnes' dilators must precede the incisions. Protracted chloroform inhalation, because favoring a blood disorganization, broncho-pneumonia, and fatty degeneration of vital organs, is irrational. To chloral hydrate, which liberates chloroform in the blood, he has the same objections, and he says that large doses of morphine may produce dangerous symptoms.

(g) MECKEL (*Münchener medicinische Wochenschrift*, January 3d, 1893) reports three cases of puerperal eclampsia. *Case I.*—Primipara, age 45; narrow pelvis. The uterus contains a number of small fibroids and is in a state of tetanic contraction. Child in face presentation, head above the brim, moribund. General condition of patient very bad. Numerous attacks, deep coma, rapid pulse. Perforation of the moribund child. Exitus two hours post partum. If seen earlier, the author believes this would have been a proper case for the sectio Cesarea after Porro. *Case II.*—Ipara, age 27. Full term; normal presentation. General condition of mother and child fair. M. employed the usual therapy (chloroform and morphine), and when the os was fully dilated he delivered an asphyxiated child by means of forceps. Mother died seven hours post partum, without having regained consciousness. *Case III.*—Twin pregnancy at full term. Both present by the vertex. Os not dilated; general condition fair. In this case a more aggressive mode of treatment was carried out. He administered chloroform, and as soon as the patient was under its influence dilatation of the cervix by Dührssen's method of deep incisions was performed. There was no hemorrhage, and two living children were delivered without any difficulty by means of the forceps. Normal puerperium.

The author pleads for early delivery. He believes that under the old method of treatment (chloroform and morphine) many mothers and children perish, which lives would be saved if the uterus were rapidly emptied.

J. R.

2. PELZER: A METHOD TO PRODUCE PREMATURE LABOR BY INTRA-UTERINE INJECTIONS OF GLYCERIN (*Archiv für Gynäkologie*, Bd. xlii., Heft 2).—The method has been in practice in the Cologne Maternity Hospital since July, 1890, both in cases of premature labor and when the labor pains are feeble and ineffective. The author claims that it is a decided improvement over

the older methods. The mode of operation is as follows: The patient is placed in the knee-elbow or Sims' position to prevent the escape of the injected glycerin. A balloon or piston syringe with a long nozzle, curved to correspond to the contour of the uterus, is introduced between the membranes and the uterine walls, and about one hundred and fifty grammes of pure glycerin are slowly injected. Care must be observed that the syringe is freed from air bubbles, which might be forced into the uterine sinuses.

The glycerin produces uterine contractions:

1. By means of the direct irritation of the inner surface of the uterus.
2. Through a mechanical separation of the membranes from the uterine walls.
3. Owing to its hygroscopic action a transudation of the liquor amnii is caused, and the ovum, becoming smaller, is consequently detached from the uterine walls.

Besides being prompt in its action, glycerin is an antiseptic medium and also lubricates the genital canal. J. R.

3. RIES: CLINICAL AND ANATOMICAL STUDIES OF THE INVOLUTION OF THE PUERPERAL UTERUS (*Zeitschrift für Geburtshilfe und Gynäkologie*, Bd. xxvii., Heft 1).—The author examined forty-eight women during various stages of the puerperium, and besides others he obtained the following facts:

1. In cases delivered at full term the os internum closes itself between the eighth and twelfth days of the puerperium. Lochia alba and diminution of the size of the uterus accompany this condition.
2. The irregularities in the uterus at the placental site are caused by thrombi of the uterine sinuses.
3. The process of uterine involution is influenced by the general health of the patient.
4. The microscopical investigation, as regards the ultimate fate of the decidua, shows that there may be:
 - (a) Fatty degeneration of the decidual cells, ending in complete obliteration of the cells.
 - (b) Hyaline degeneration with various results.
 - (1) The hyalin is discharged from the cells, but the cells retain their vitality.
 - (2) The hyaline degenerated cell is discharged from the uterus and forms a part of the lochial discharge.
 - (3) Retention in utero of the hyaline degenerated cells, in which case they may be a cause of endometritis post abortum or decidual polypus.
 - (c) Shrinking of the decidual cell into a connective-tissue cell.
 - (d) The smallest connective-tissue cells (round cells) develop into the interstitial connective tissue of the new mucous membrane.

4. SUTUGIN: RETRO-UTERINE ABDOMINAL PREGNANCY (*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xxiv., Heft 1).—1. Retro-uterine abdominal pregnancy generally terminates in rupture of the sac and in the formation of a pelvic hemothecoele. Gestation up to full term is rare.

2. The initial symptoms are identical with those of intra-uterine pregnancy. The indications of an existing compression of the intestines and ureters are observed earlier than in other forms of ectopic gestation. If the placenta attaches itself to the peritoneum lining Douglas' cul-de-sac, severe backache, pelvic pains, and bladder disturbances are generally observed.

3. Besides the ordinary symptoms of pregnancy, we find an elastic retro-uterine tumor. The uterus is enlarged and dislocated anteriorly. After the fourth month of gestation an irregular abdominal tumor of cystic consistence and containing a fetus is felt; anteriorly to this tumor lies a firm and smooth body, which is the enlarged and dislocated uterus.

4. Valuable diagnostic points are: Narrowing of the vagina through an elastic, more or less compressible tumor which feels like placental tissue, but is sometimes without pulsation. The vagina is very much drawn out, the portio is sometimes so high as to be inaccessible to the exploring finger. Enlargement of the uterus, as indicated by the sound, may be simultaneous with abdominal pregnancy.

5. The line of treatment adopted must be in accordance with the stage of gestation and the condition of the fetus. In cases of rupture of the sac and developing hemothecoele the cul-de-sac of Douglas should be opened. Laparotomy and complete removal of the fetal adnexa is indicated if the fetus is alive or has perished some time.

J. R.

5. MARTIN, A.: ECTOPIC GESTATION (*Centralblatt für Gynäkologie*, No. 39, 1892).—This paper was read before the First International Gynecological Congress, in Brussels. His conclusions are as follows:

So long as the place of contact between the ovum and spermatozoa is not absolutely known, so long must the etiology of extra-uterine pregnancy remain a hypothesis. The probable causes of ectopic gestation are pathological changes in the Fallopian tubes which prevent the ovum from gaining access to the uterine cavity. For the ovum to develop it is necessary that the mucosa of the tubes be in a normal or nearly normal condition.

Ovarian pregnancy, while rare, undoubtedly occurs. The most frequent seat of the ovum is the ampullæ tubæ (in fifty-five cases, forty-nine times). The tubal decidua develops soon after the fixation of the ovum. This decidua is, as a rule, incomplete. The muscular layers of the tube atrophy and never increase in thickness, as is commonly believed. The uterus un-

dergoes hypertrophic changes, and is always the seat of a more or less well-developed decidua. This decidua may degenerate while the ectopic gestation continues. Tubal gestation is interrupted in the majority of cases at or before the third month. The author only operated once in a case which continued up to full term. The physiological incongruity is the cause for the premature interruption of tubal pregnancy.

If cases of tubal gestation are left to themselves they may end in perfect recovery of the patient; but the convalescence is slow, and pelvic peritonitis and suppuration are by no means infrequent complications. Five cases which came under Martin's notice all ended fatally. Schauta collected two hundred and forty-one cases which were treated expectantly, with the following results:

Rupture and hemorrhage into the peritoneal cavity.....	128
“ “ formation of hematocele and peritonitis.....	22
“ into the intestines	34
“ “ bladder	9
“ through the abdominal parietes	5
“ into the vagina.....	4
“ “ uterus	6
Incarceration (ileus).....	4
Lithopedion.....	9

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Recovery, 31.2. Mortality, 68.8.

Five hundred and eighty-five cases (Martin) in which operations were performed: Recovery, 76.6; mortality, 23.4.

While the prognosis is always grave, the operative treatment gives the best results, and Martin, therefore, advocates laparotomy in every case, no matter whether the sac has ruptured or not. He believes, with Lawson Tait, Veit, Werth, and Pozzi, that the extirpation of the whole tumor is the only proper line of treatment. He has no confidence in the injection of morphia or in the electrical treatment. J. R.

6. SOLOWIZ: OSTEOMALACIA AND CESAREAN SECTION (*Centralblatt für Gynäkologie*, No. 38, 1892).—The author performed the Sänger operation in a case of severe osteomalacia. Both ovaries were removed. The woman recovered from the operation and the disease. The favorable results produced upon osteomalacia through castration justify this operation in the non-pregnant state. On account of its lower mortality S. prefers the Sänger instead of the Porro operation. The Porro is indicated: 1. If the sectio Cesarea must be performed before the advent of labor pains. 2. In post-partum hemorrhage after the uterus has been sutured. 3. In cases of septic endometritis. 4. Tumors of the uterus. 5. Malformation of the genital canal. He ligates the Fallopian tubes in every case of Cesarean section, and even goes so far as to advocate castration in laparotomy cases, performed for one or the other cause, if the woman has numerous children and is in poor financial circumstances. J. R.

7. LIHOTZKY: PERFORATION OF THE INTESTINES IN THE EIGHTH MONTH OF GESTATION (*Centralblatt für Gynäkologie*, No. 26, 1892).—A woman, age 33, was admitted to the hospital suffering from an acute peritonitis. Examination showed that she was in the eighth month of pregnancy; fetal heart sounds could not be heard. The patient was in a moribund condition, and all active interference was contra-indicated. She died on the following day. A subsequent post-mortem demonstrated these interesting facts: The uterus contained an eighth month fetus in a condition of beginning maceration. The peritoneum presented the changes of a purulent peritonitis. The handle of a small spoon protruded from a perforation in the outer side of the duodenum descendens. Two years and a half ago the patient suffered from a mental derangement caused by an attack of influenza and domestic troubles. She then attempted suicide by swallowing a spoon. At the hospital to which she was admitted no signs of a foreign body could be found, and, as her mind was still deranged, her statements were discredited. The woman regained good health. The last pregnancy was perfectly normal. She had no pain, and her appetite and digestion were good until four days before her death, when she was suddenly seized with nausea and severe abdominal pain. J. R.

8. EHRENDORFER: CARCINOMATOUS DEGENERATION OF A FIBROUS POLYPUS (*Centralblatt für Gynäkologie*, No. 27, 1892).—The patient is 54 years old; last confined sixteen years ago. She gives a history of irregular menstruation extending over a period of fifteen years. During the last few months suffered from severe uterine hemorrhages. From the vagina exudes an abundant bloody secretion. A firm tumor the size of a fist protrudes from the cervix and fills the vagina. The uterus is small and movable. The tumor was removed. About one month later suspicious granulations appeared upon the cervix, which seemed to undergo malignant degeneration and presented all the appearances of a cancerous ulcer. Hysterectomy was proposed, but the operation was declined because she was in fair health and free from hemorrhage. Microscopical examination showed the tumor to be a true fibroma invaded by cancerous elements, and upon its surface was a carcinomatous ulcer. J. R.

9. VELITZ: CESAREAN SECTION (*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xxiv., Heft 2).—The author reports two cases of Cesarean section operated under the relative indication. Both terminated in recovery. The elastic rubber tube was not employed, but an assistant compressed the cervix with his hands. The advantages claimed are that the bleeding vessels point out the spots where the sutures should be placed, and the diminished risk to post-partum hemorrhage. Operating before the advent of labor pains he considers highly dangerous on

account of post-partum hemorrhage; Treub has lost two cases operated upon under this condition. In cases of uterine hemorrhage he advocates tamponing with iodoform gauze in preference to the Porro operation. For closure of the uterus two rows of interrupted silk sutures are used. The deep sutures include the muscular layer only; the superficial sutures unite the peritoneum. This method, he believes, will diminish the frequency of adhesions between the uterus and abdominal walls. In his first case the uterus remained movable, but in the second case a utero-abdominal fistula formed, through which silk ligatures were discharged, and the uterus became firmly attached to the abdominal parietes. When the pelvic deformity is so great that we cannot hope to obtain a viable child through the induction of premature labor, future conception should be prevented by ligating the Fallopian tubes. To subject a woman to the dangers of a repeated Cesarean section he considers cruel and inhuman.

J. R.

10. SCHWARZMÜLLER: THE SO-CALLED RACHITIS OF THE FETUS (*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xxiv., Heft 1).—Two cases were subjected to a thorough macroscopical and microscopical examination, and based upon these investigations S. concludes that these cases have nothing in common with true rickets. The etiology of this disorder is still in doubt, but the author has reason to believe that the changes in the bones (sclerosis of the diaphysis, greater density of the periosteum, diminution of the medullary spaces) may be produced by coiling of the umbilical cord around the extremities, causing a direct pressure upon the bones, disturbances in the placental circulation, and a consequent diminished supply of the bone-making substances.

J. R.

11. KLEINWÄCHTER: THE JUSTIFIABLE PREVENTION OF CONCEPTION (Reprint, Berlin, 1892).—The physician not infrequently has to warn against conception in cases where a pregnancy would endanger the life or the health of the patient. Pelvic contraction, abdominal and uterine tumors, etc., form such an indication. The advice to abstain from coitus is but seldom followed, and the means usually employed to prevent gestation (mechanical) are objectionable from a hygienic and ethical point of view. K. endeavored to find a remedy which would have none of the aforementioned drawbacks. He prescribes a cocoa-butter suppository containing ten per cent of boracic acid to be introduced high up into the vagina. These suppositories dissolve in about one hour, and the liberated acid destroys the spermatozoa. Bichloride of mercury in 0.001 gramme doses can also be used, but in that case a vaginal douche has to follow the sexual act. The solvency of the suppository is heightened by adding one grain of oleum olivæ. The author considers this a safe and sure remedy to prevent conception. Therapeutic

effects may be combined by the adding of various drugs—for instance, tannin in cases of uterine catarrh. J. R.

12. BIERMER: THE SCIENTIFIC BASIS OF SYMPHYSIOTOMY (*Centralblatt für Gynäkologie*, 1892, No. 51).—To accurately demonstrate the increase of the pelvic diameters in the operation of symphysiotomy, the author divided the pubic joints in four female pelvis (three puerperal) and obtained the following measurements:

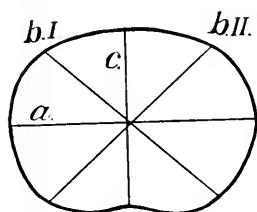


FIG. 1.

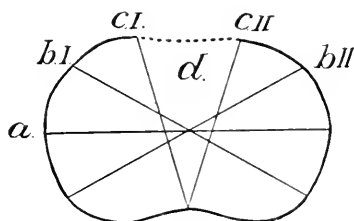


FIG. 2.

FIG. 1.—Pelvic diameters before symphysiotomy. *a*, diametrus transversus; *bI*, diametrus oblongatus I; *bII*, diametrus oblongatus II; *c*, conjugata vera.

FIG. 2.—Pelvic diameters after symphysiotomy. *a*, diametrus transversus; *bI*, diametrus oblongatus I; *bII*, diametrus oblongatus II; *cI*, conjugata vera (divergens) I; *cII*, conjugata vera (divergens) II; *d*, distance between the two pubic bones.

CASE I.—Non-puerperal pelvis. Woman æt. 39.

FIG. I.

<i>d</i> , 0 Cm.
<i>a</i> 14
<i>b</i> ¹ 13½
<i>b</i> ² 13½
<i>c</i> 10½

FIG. II.

	<i>d</i> , 1 Cm.	2 Cm.	3 Cm.	4 Cm.	5 Cm.	6 Cm.	7½ Cm.
<i>a</i>	14½	14¾	15½	16	16½	17	17½
<i>b</i> ¹	13½	14½	15	15½	16	16½	16¾
<i>b</i> ²	13¾	14½	15	15½	16	16¾	17¼
<i>c</i> ¹	10¾	11	11	11¼	11½	11¾	12
<i>c</i> ²	10¾	11	11¼	11½	11½	11¾	11¾

After the pubic bones had separated four centimetres a luxation of the left sacro-iliac synchondrosis took place.

CASE II.—Ipara, æt. 23, puerperal pelvis. Death from placenta previa, three-quarters of an hour post partum.

FIG. I.

<i>d</i> , 0 Cm.
<i>a</i> 12
<i>b</i> ¹ 11½
<i>b</i> ² 11
<i>c</i> 10

FIG. II.

	<i>d</i> , 1 Cm.	2 Cm.	3 Cm.	4 Cm.	5 Cm.	6 Cm.	7 Cm.
<i>a</i>	12½	13	13½	13½	14	14¾	15½
<i>b</i> ¹	12	12	12½	13¼	13½	14½	15
<i>b</i> ²	11½	11¾	12½	13¼	13½	13¾	14
<i>c</i> ¹	10	10¼	10½	10¼	10½	11	11
<i>c</i> ²	10	10¼	10¼	10¼	10½	11	11¼

Luxation of the sacro-iliac synchondrosis after the pubic bones had separated seven centimetres.

CASE III.—IVpara, æt. 27, puerperal pelvis. Death from rupture of the uterus.

FIG. I.

d. 0 Cm.
a 13½
b¹ 14
b² 13¾
c 12¼

FIG. II.

d. 1 Cm.	2 Cm.	3 Cm.	4 Cm.	5 Cm.	6 Cm.	7 Cm.
a 14½	15	15½	16½	16½	17	18
b¹ 14½	14½	14½	15	15½	16	17
b² 14	14½	15	15½	16	16½	17½
c¹ 12¾	12¾	13	13	13½	13½	(12¾?)
c² 12¾	12¾	13	13	13½	13½	13½

Luxation of the sacro-iliac synchondrosis when the pubic bones were separated eight centimetres.

CASE IV.—Ipara, æt. 20, puerperal pelvis. Death from eclampsia intra partum.

FIG. I.

d. 0 Cm.
a 13¾
b¹ 12¾
b² 12¾
c 10½

FIG. II.

d. 1 Cm.	2 Cm.	3 Cm.	4 Cm.	5 Cm.	6 Cm.	7 Cm.
a 14½	14½	14¾	15¼	16	17	17¼
b¹ 13½	13½	14	14½	15½	16½	17
b² 13	13	14	14¾	15	16	16¾
c¹ 10¾	10¾	11	11¼	11½	11½	11½
c² 10¾	11	11	11	11½	12	12¼

Luxation of the sacro-iliac synchondrosis when the pubic bones were separated nine centimetres.

If the woman was placed in the lithotomy position a spontaneous diastasis of four centimetres between the pubic bones took place.

J. R.

13. VELITZ: SYMPHYSIOTOMY (*Centralblatt für Gynäkologie*, No. 40, 1892).—IIIpara, age 21. Spinal lordosis; rachitic pelvis. Spinae, 26 centimetres; cristae, 27 centimetres; conjugata externa, 16.5 centimetres; conjugata diagonalis, 9.5 centimetres; conjugata vera, 7.5 centimetres. The first two pregnancies were terminated by craniotomy after other means to effect delivery had proved unsuccessful. The patient was admitted to the hospital while in the second stage of labor. The head remained movable above the pelvic brim in spite of severe labor pains. The discharge of meconium containing liquor amnii indicated beginning asphyxia of the fetus; its heart sounds were normal.

Symphysiotomy was decided upon. An incision five centimetres long divided the soft parts down to the symphysis. Then, after detaching the recti muscles from their bony attachments, the left index finger was introduced behind the synchondrosis, and the upper three-quarters of the joint divided with a probe-pointed straight bistoury. The bones separated one and a half centimetres. Then axis-traction forceps was

applied while two assistants pressed against the trochanters, and a somewhat asphyxiated child (3,200 grammes) was easily extracted. During the passage of the head the bones separated about four centimetres. Closure of the wound with silkworm gut; antiseptic dressing; elastic bandage around the pelvis. This bandage, on account of causing much discomfort, was replaced the next day by a broad belt; the legs were also tied together. Patient passed through a normal puerperium. She could move her legs from the beginning. During the first three days the urine was drawn; after that it was voided spontaneously. She walked around on the twenty-second day post operationem, and was discharged on the twenty-sixth day with a living child and herself in perfect health. J. R.

14. OLIVIER: THE SELECTION OF A WET-NURSE (*Arch. de Toc. et de Gyn.*, 1892).—Few works upon obstetrics give details upon this subject, so important to the health of the infant. Olivier supplies the deficiency.

Qualities of a Good Wet-nurse. Age.—She should not be under 20 years of age, both because of a lack of experience and of physical development. Moreover, the milk of a woman from 16 to 20 years of age contains twenty grammes less of water than the average, sixteen grammes more of casein, ten grammes of fat, and very little sugar, and is consequently less digestible. Neither should she be over 35 years of age, as the milk is apt to be poor in quality, with a deficiency of solid constituents and an increase of water.

Date of Confinement.—This should have occurred not less than three nor more than six months previously. Correspondence between the age of the two infants is of less importance than is supposed. The milk during the first two months is apt to cause intestinal indigestion, even when the mother nurses her own child. After the third month the stools are healthy in color and the child develops rapidly. During the first two months the nurse is subject to discharges of blood or of leucorrhœa. The return of menstruation should suffice for the rejection of a nurse; the milk is not poisonous at such times, as some persons maintain, but the child certainly is not as well, does not increase in weight, and does not sleep or digest its food as well. The milk is also apt to diminish in amount during the period.

Another reason for not choosing a nurse in the first or second months is that we cannot be sure of the absence of syphilitic taint unless the nurse's child is known to be free from it, and the first syphilitic manifestations do not appear until the fourth or sixth week after birth.

Should the child be more than six months old when given to a wet-nurse, it may be well to choose one whose confinement is of as early a date. In the case of the newly-born, however, milk which is of a disproportionate age is difficult of digestion.

In spite of the preference usually accorded to primiparæ, it is more advantageous to choose a multipara, as she will probably be the better nurse. Nevertheless, a robust, vigorous primipara, with plenty of milk and otherwise desirable, should not be rejected. A nurse should not be permitted to take a child to nurse upon the termination of a first engagement. The milk is poor in quantity, and the nursing exhausting to the woman's own vitality.

From a medical point of view it is a matter of small importance whether the nurse be married or not, it being well-nigh impossible to obtain satisfactory data in regard to the health of the husband. The stereotyped reply is that he is in sound health and has never been ill. From a moral point of view the preferences of the family employing the nurse are to be respected.

Pathological Antecedents.—Tuberculosis and syphilis are the two diseases to be specially inquired about. As to other conditions, we should examine the teeth, which, if sound, indicate that there is probably no indigestion. We should ascertain whether the woman be constipated or of regular habits; whether she is subject to palpitation or to syncope; whether there be hysterical manifestations of any kind. Some ingenuity in questioning will be needed, as the women will always assert that they are not nervous.

As regards tuberculosis, the personal history of both husband and wife should be taken, with causes of death of their parents, or their condition of health if still alive. For syphilis, inquiries should be directed to the hair, scalp, throat, skin, and vulva, and the question should be put as to whether the husband has ever been under a long course of treatment for the blood, whether his hair has fallen out, etc., etc.

Examination of the Nurse.—A large mammary gland indicates a full supply of milk, but the breast may be enlarged by fat and the gland poorly developed. Soft, hanging breasts usually contain little milk, but should not be confounded with the pendent breasts of multiparæ, which may still be firm and nodular. Bluish veins, indicative of richness of circulation, are usually found upon the breasts of good nurses. The nipple should be of moderate size and not too short, nor retracted. There should be a number of orifices. No fissures should escape the eye of the physician. Both breasts should be carefully examined.

The amount of milk may be approximately estimated by pressure upon the base of the nipple, which will cause an exudation of milk. A drop should be placed upon one's nail or upon glass, and its transparence noted, as well as its fluidity. This will give an idea of its poverty or richness in elements of nutrition. The lactoscope, microscope, and other instruments for estimating the quality of the milk are not always available, nor can the time always be taken for such examination.

Health of the Nurse.—Some physicians refuse all blondes, considering them predisposed to tuberculosis. This is prejudice. Red-haired blondes should be rejected, as they are liable to perspire copiously and the odor might cause the child to turn from the breast.

Ciliary blepharitis is to be sought for, and the submaxillary region and back of the neck examined to ascertain the condition of the ganglia or the existence of cicatrices of scrofula. Mucous patches of the mouth and throat must be sought.

Mitral and aortic affections and the slightest trace of pulmonary trouble should suffice to reject a nurse. Examination of the abdomen and of the genital organs is rarely permitted.

Examination of the Nurse's Child.—The infant should be completely undressed and its general condition carefully noted. Syphilides should be sought for in the mouth and nostrils and in the genital tract. The physician must ascertain beyond doubt that the child really belongs to the nurse and has not been borrowed for exhibition, and that it has not been fattened upon artificial food.

A. R.

15. ENGSTRÖM: THE ETIOLOGY OF TUBAL PREGNANCY (*Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xxiv., Heft 2).—In two cases of tubal pregnancy which he had examined before impregnation occurred, E. demonstrated a diseased condition (thickening) of the affected tubes, a mild degree of pelveo-peritonitis, fixation of the ovaries through pseudo-membranes, and a uterine catarrh. It is certain that the ciliated epithelium of the Fallopian tubes was more or less damaged, and consequently its power to transport the ovum into the uterine cavity was diminished. The cause of ectopic gestation must be sought for in an obstructed passage of the ovum from the ovaries through the tubes into the uterus. The ovum, after its discharge from the Graafian follicle, is swept by the ciliary epithelium into the Fallopian tubes and uterine. Peristaltic contraction of the tube may aid this passage. Modern investigations no longer justify the belief that the ovum can pass from one tube through the cavity of the uterus into another tube.

J. R.

16. GUSSEROW, A.: ASCITES AS IT IS MET WITH IN GYNECOLOGICAL CASES (*Archiv für Gynäkologie*, vol. xlii., p. 469).—Gusserow describes those cases of ascites in which a considerable amount of free fluid is present in the abdominal cavity, without lesions of the circulatory, digestive, and excretory apparatus being discoverable. The absence of edema of the subcutaneous cellular tissue, and the impossibility of discovering pathological changes in the genital adnexa before the removal of the fluid, are pathognomonic of this condition. These cases the author treats by performing an exploratory laparotomy, which lets off the fluid, facilitates the diagnosis, and allows immediate radical treatment if so desired.

The practice of drawing off the fluid with the trocar or aspirator is not without danger and precludes an accurate diagnosis. The cases are grouped as follows: 1. Peritonitis tuberculosa, or, what is a better term, peritonitis nodosa, because tuberculous nodules and tubercle bacilli are not always present. These cases are generally benefited and often cured by an incision which allows the fluid to drain off.

2. Papillomata of the ovaries. Diagnosis without an exploratory incision is almost an impossibility. Removal of the disease is *sine qua non* to cure, and if treated by aspirating fluid only, the abdomen will soon refill and the condition of the patient become hopeless.

3. Carcinoma and sarcoma of the ovaries, generally complicated with disease of the peritoneum. Here it is often possible to palpate the new growth, especially after the fluid has been aspirated; but an exploratory laparotomy is always advisable, because some of these cases, if the peritoneum is free from disease, can be benefited by a removal of the growth.

4. Benign tumors of the ovaries and tubes. These tumors may be felt after the abdomen has been emptied of its fluid contents, yet their differentiation from malignant growths is difficult, if not impossible; and as the condition often demands an operation, exploratory laparotomy is clearly indicated.

J. R.

ITEM.

At the second annual meeting of the AMERICAN ELECTROTHERAPEUTIC ASSOCIATION the following officers were elected for the ensuing year: *President*—Dr. Augustin H. Goelet, No. 531 West 57th street, New York. *First Vice-President*—Dr. William F. Hutchinson, Providence, R. I. *Second Vice-President*—Dr. W. J. Herdman, Ann Arbor, Mich. *Secretary*—Dr. Margaret A. Cleaves, No. 58 Madison avenue, New York. *Treasurer*—R. J. Nunn, No. 119 York street, Savannah, Ga.

The third annual meeting will be held in Chicago on September 12th, 13th, and 14th, 1893. A cordial invitation is extended to all members of the profession interested in electrotherapeutics.

The Committee of Arrangements will be obliged if those who intend being present at the meeting will send their names, the class and amount of accommodation required, titles of papers to be presented, applications for membership, etc., at as early a date as possible. Accommodation should be secured early, on account of the crowded condition of the hotels because of the World's Fair. All communications should be addressed to the secretary.

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ORIGINAL COMMUNICATIONS.

VAGINAL LIGATION OF A PORTION OF THE BROAD
LIGAMENTS FOR UTERINE TUMORS OR HEMORRHAGE.¹

BY

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Hospital, etc.

(With seven illustrations.)

THE idea of this operation came to me while making an examination of a large bleeding fibroid in which the uterine arteries, as large as lead pencils and pumping blood at a fearful rate into the tumor, were conspicuously felt on either side of the cervix. While I had noticed the same fact a great many times before when preparing to make an electro-puncture or in giving an intra-uterine electrical treatment for fibroids, it had never before dawned upon me what a large amount of blood might be shut off from these bleeding masses by throwing a strong ligature around these comparatively superficial blood

¹ Read before the Gynecological Society of Chicago, December 16th, 1892.

channels, which represent fully two-thirds of the blood supply to the uterus.

The first objection which arose in my mind was the fact that there was such intimate anastomosis between the uterine artery and the spermatic or ovarian artery above that a compensatory supply of blood would soon be derived from that source.

I met that objection, mentally, with the fact (*a*) that the compensatory supply of blood must come from a much smaller artery which derives its blood in a single channel from a long distance; (*b*) that the nerve supply to the trunks of the two arteries were comparatively widely separated, and that by the time the nervous mechanism had communicated the fact of blood drought in the uterus and had succeeded in beginning the process of correcting it, the abnormal growth would have been changed in nutrition, atrophy would have begun, and in the meantime blood would have been saved.

The second objection which presented itself to me was the fact that I might not be able to ligate the main artery far enough away from the uterus to prevent collateral circulation being derived from branches given off further back. As collateral circulation is oftenest supplied by arteries arising from the same source or trunk back of the obstruction, this gave me more anxiety than my first objection. Fortunately there were two methods of avoiding the difficulty—viz., (*a*) by being able to ligate the trunk of the uterine artery far enough away from the uterus to include its uterine branch; and (*b*) by ligating not only the uterine artery, but by including *en masse* the whole base of the broad ligament, thereby shutting off all possibility of leaving any anomalous branches, should they exist.

The next questions of interest to me were: (*a*) Is the idea of the operation of ligating the broad ligament for the purpose of controlling hemorrhage, or for changing the nutrition of uterine tumors so as to check their growth and reduce their size, original with me? (*b*) Is the execution of the operation also original?

The idea of ligation of the *uterine artery* as a step in other procedures, or as an adjunct to other operations, is not new. Ligatures have been thrown around the uterine arteries for the purpose of checking acute hemorrhage from the circular artery when that blood vessel has been severed in incision of the cervix in obstetrics, or in its unavoidable incision in operations about the non-puerperal uterus. It is almost invariably ligated

as a preliminary step in vaginal hysterectomy. Masi,¹ of Italy, recommended ligation of the uterine artery as a preliminary operation for uterine cancer, sarcoma, and myofibroma, with a view of completing the operation later by resorting to laparotomy or vaginal hysterectomy for removal of the difficulty. He even went so far as to describe a method of operating based upon a number of observations made upon eadavers. He did not, however, report that he utilized the operation in actual practice. Schröder² executed the operation as a preliminary, afterward removing the uterus by the abdomen or vagina. Martin³ and Fritsch⁴ tied the artery as a preliminary step. Gubaroff and Piergoff⁵ tied the artery, and afterward proceeded to remove the growth. The former found the operation of importance. Rydygier⁶ tied the artery *per vaginam* as a precautionary measure before abdominal hysterectomy. Howard Kelly⁷ recommends ligation of the ovarian and uterine artery in case of hemorrhage in laparatomies, ligating from above. But, so far as I have gone in my investigation of the literature of the subject, I find no reference to any proposition to ligate more of the broad ligament from the vagina than the uterine artery, and that only for controlling troublesome hemorrhage—not with the idea of changing the nutrition of new growths, or of recommending the procedure as an operation in itself.

My proposition, so far as I can learn, of vaginal ligation of the broad ligament, to the extent, if necessary, of even including the ovarian artery of one side, is original.

My proposition of performing this operation, as an operation in itself, for the purpose of obtaining permanent benefit as a curative procedure, is original.

The execution of the operation which I am about to describe as an operation *per se* I believe to be without precedent.

It may not be entirely superfluous to refer to the distribution of the arteries in the broad ligament. This drawing, which I have reproduced from Hyrtel, as borrowed by Hart and Barbour, gives a fair idea of the subject (Fig. 1).

¹ Gazzetta degli Ospitali Milano e Napoli, 1891, p. 811.

² Zeitschrift für Geburtshülfe und Frauenkrankheiten, vol. vi., p. 289.

³ "Pathologie und Therapie der Frauenkrankheiten," 2d ed., 1887, p. 26.

⁴ Chirurgische Lieferungen.

⁵ Centralblatt für Chirurgie, 1890.

⁶ Wiener klinische Wochenschrift, 1890.

⁷ Johns Hopkins Hospital Reports, Nos. 3 and 4, vol. ii.

"The uterine artery springs from the anterior division of the internal iliac and passes downward and inward toward the cervix uteri. It then passes upward between the layers of the broad ligament by the side of the uterus, in an exceedingly tortuous manner, to anastomose with the lower branch of the ovarian. Branches pass from it into the substance of the uterus; these are the curling arteries of the uterus. The vaginal arteries usually spring immediately from the anterior division of the internal iliac artery, but sometimes arise from the uterine or middle hemorrhoidal. A special branch of the

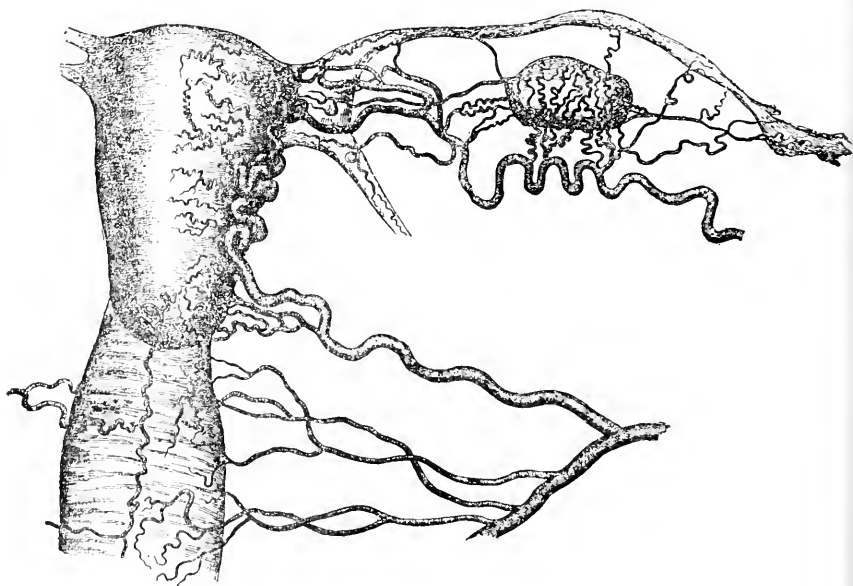


FIG. 1.

uterine artery to the cervix joins with its fellow at the isthmus to form the circular artery, and with those of the vagina to form the azygous artery of the vagina" (Hart and Barbour).

"The ovarian artery of each side is a branch of the abdominal aorta . . . In the pelvis it passes between the layers of the broad ligament, running tortuously toward the upper angle of the uterus. Near this it divides into two branches. The upper supplies the fundus uteri; the lower anastomoses at the side of the uterus with the uterine artery" (Hart and Barbour).

Besides these arterial channels the broad ligament contains

corresponding venous channels with a complex anastomotic network. It also conducts the lymphatic channels and the complete nervous network and supply. Thus through the broad ligaments, almost exclusively, the uterus with its wonderful functions maintains its relations with the outer body. Its blood supply and drain, its system of lymphatics, its intricate nerve communication, its nervous reflexes and nutrition, all must be impaired in exact proportion as the broad ligaments are destroyed.

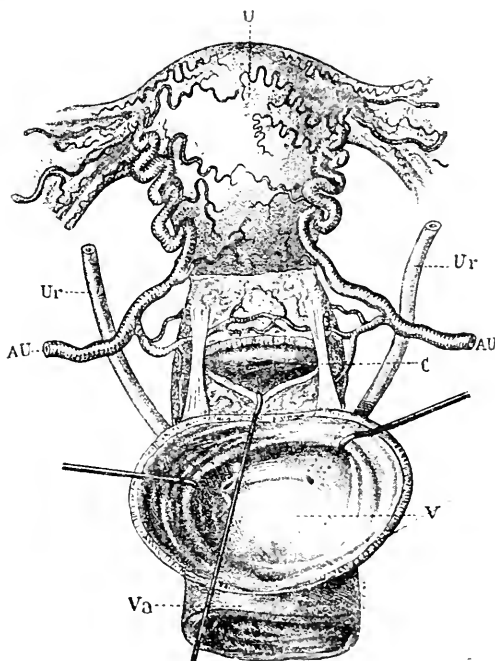


FIG. 2.

The next drawing (Fig. 2) is taken from Pozzi (vol. i., p. 361). U represents the uterus; AU, the uterine arteries; V, a section of the bladder drawn forward; Ur, ureters passing behind the uterine arteries, diverging as they ascend to the side of the pelvis; C, cervix uteri, as seen through a transverse incision of the anterior vaginal cul-de-sac. We can distinguish on the cervix the part not crossed by the peritoneum, which adhered to the bladder before dissection. It must be remembered that this drawing represents the bladder as separated from the uterus, between

which two there is close attachment in the natural state, and that the ureters are unnaturally separated from the cervix in consequence of the displacement of the bladder. As it is desirable to make all operations as simple as possible, it is necessary to bear in mind the relation of the broad ligament to the peritoneal cavity, so that the peritoneum may not be unnecessarily invaded. As the broad ligament is but a fold of the peritoneum, filled with the channels of supply for the uterus, it is obvious that we do not deal with the ligament as a whole, but simply with its contents.

The operation, then, which I propose is the ligation of more or less of the broad ligament with its vessels and nerves, the extent of the ligation depending upon the result sought, from a simple ligation of the base of the ligament, including the uterine arteries and branches of both sides without opening the peritoneum, to a complete ligation of the ligament of one side, including both uterine and ovarian arteries, with partial ligation of the opposite ligament without opening the peritoneal cavity, if possible, but by doing so if necessary.

The results sought in the operation are, first, checking of hemorrhages of the uterus by cutting off blood channels; and, secondly, changing the nutrition of the uterus by interfering with its nerve supply, with the idea of modifying neoplasms which depend upon that organ for their nourishment and growth.

Preparation for Operation.—The two patients upon whom I have performed this operation were prepared as for a vaginal hysterectomy. They were put upon a laparotomy diet for two days before the operation, and the bowels were thoroughly washed out with enemata. Besides the ordinary general bath and the antiseptic bath, on the morning of the operation the external genitals and the vagina were thoroughly cleansed with soap and water, shaved, and rendered aseptic by douching, etc. The patient was anesthetized and placed upon the operating table in the exaggerated lithotomy position, as for vaginal hysterectomy, with an assistant on either side to support the limbs and hold the retractors. A broad, short vaginal retractor, above and below, exposed the cervix, which was transfixed with a strong silk ligature to be employed in handling the uterus. Before tying this ligature a piece of gauze was packed into the cervix to absorb any secretion from the uterus, and the ligature tied so as to retain it. The uterus was then drawn down in order

to put the broad ligaments on the stretch, and then drawn to the right side so as to expose the left vaginal vault. The mucous membrane of the vagina at the utero-vaginal fold on the left side was then caught with a tenaculum and incised with a pair of curved scissors. One blade was then allowed to enter, and a curved incision one and a half to two inches long was made over the broad ligament and at right angles to it (Fig. 3). By means

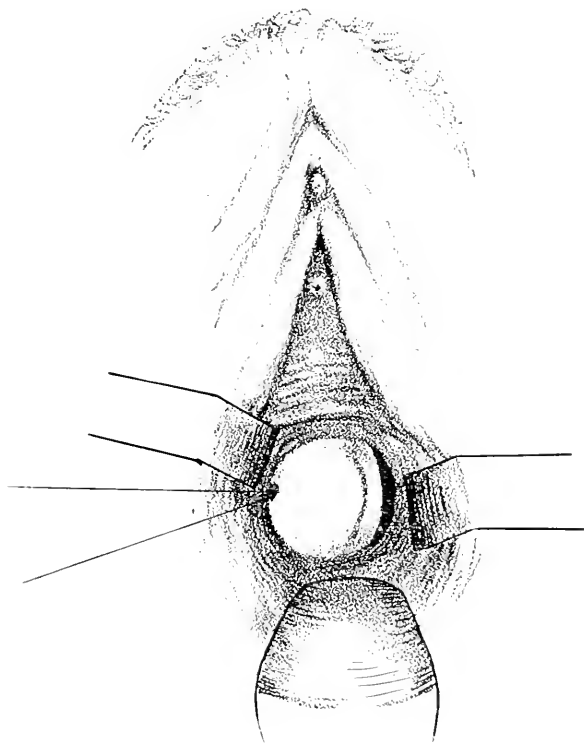


FIG. 3.

of the index fingers of two hands I separated the vaginal tissue from the broad ligament, and carefully separated the broad ligament in front from the bladder for a height of two inches, and laterally for nearly the same distance, using two fingers for the purpose (Fig. 4). By freeing the bladder in this way I avoided the dangers of wounding that organ, and by pushing the separation laterally the ureter is forced out of reach. I then carefully separated the broad ligament posteriorly to the same height as in front, without penetrating the peritoneum.

Then, by passing one finger behind, the other in front, the whole base of the broad ligament, representing two-thirds of its width, was grasped (Fig. 5) for a distance of an inch to an inch and a half from the uterus. In this grasp I could easily feel the throb of the main trunk of the uterine artery and several branches.

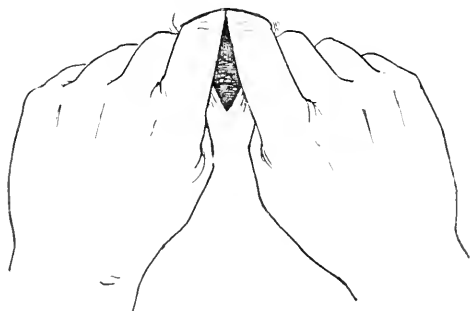


FIG. 4.

I then passed a curved pedicle needle (Fig. 6) armed with No. 12 braided silk, and guided by the index finger of the left hand, behind the broad ligament, well up beyond all pulsating vessels.



FIG. 5.

Next, with the same index finger guiding the point of the instrument, I penetrated through the broad ligament. The ligature was drawn through, the needle removed, and the base of the broad ligament firmly tied at a distance of one inch or more away from the uterus. The ligature was cut short, leaving it well buried in the tissues of the ligament. The opposite side

was treated in the same manner, the vagina was well irrigated with bichloride solution, and then the vaginal incisions were accurately approximated with fine catgut, completely burying the silk (Fig. 7). The handling string in the cervix was removed and the vagina packed with iodoform gauze.

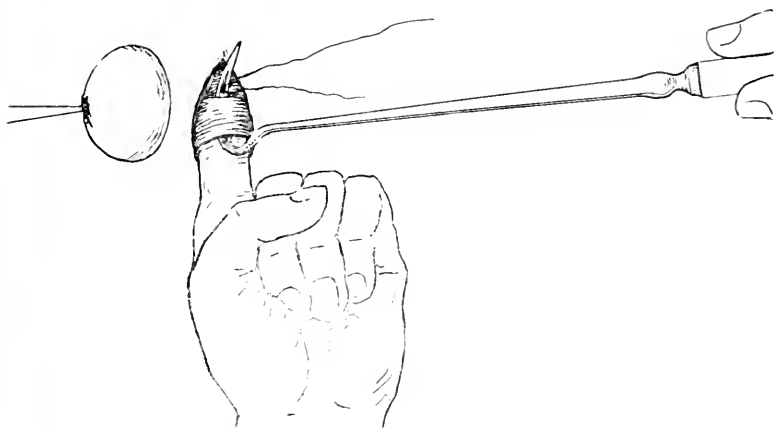


FIG. 6.

The after-treatment was very simple. It consisted in the removal of the gauze on the third or fourth day, followed by antiseptic douches. The vaginal wounds were perfectly healed at the end of a week.

The two cases which I have to report were operated upon

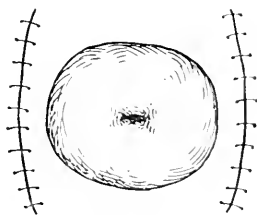


FIG. 7.

within the last month. The shortness of time since the operation will make it impossible for me to speak of remote results.

CASE I.—The first case was that of a maiden lady, 36 years of age, with a multiple intramural fibroid. She had been under the Apostoli treatment, off and on, for more than a year. The tumor, as a whole, had been materially reduced by that treatment and the

consequent hemorrhage modified. In fact, as long as treatments were continued there was no flowing, even at the menstrual periods; but as soon as the electrical treatment was left off for a week or more, the blood flow would return. The patient had every reason to rejoice at the success of the treatment, except in this one particular; she did not see her way clear, however, to continue the electrical treatment forever. I therefore recommended an operation, which was performed November 15th at the Woman's Hospital, with the assistance of Dr. J. Bacon and Dr. White. The details already described were carried out, although with some difficulty on account of the contracted vagina. The operation was not entirely satisfactory to me, as I fear that I did not go high enough on the left side to include all the branches of the uterine artery. I was less timid and more persistent on the right side, and succeeded in transfixing fully two-thirds of the broad ligament, in the centre of which could be distinctly felt the large, throbbing artery. Both of my assistants were satisfied on this point, both by ocular and tactile demonstration. The tying of the ligatures removed all arterial throbbing, which had previously been easily felt about the cervix. The ligatures were cut short and buried by closing the vaginal incisions with catgut, the vagina was packed with gauze, and the patient put to bed. For twenty-four hours there was a slight discharge of venous blood. From that time on there was a slight discharge of straw-colored fluid. She left the hospital on the eighth day. On the fifteenth day I saw her at my office; she had been free from flowing, and reported that she felt much less fulness and pressure in the pelvic region than before the operation. As she was to go to friends at some distance from the city, I asked her to report to me at the end of a month, which she does as follows: "Was quite lame across the abdomen—think it was from my journey; have had a discharge each day, more after stirring around, in the morning usually—not a constant discharge, but in gushes; not any blood since the night following your examination." Thus, while there has been an unusual watery discharge, she has been remarkably free from hemorrhage.

CASE II.—The next case, a married woman about 40, had also been under electrical treatment for a hemorrhagic uterine myofibroma. The tumor had been markedly reduced by intra-uterine applications, but for some reason (probably on account of an irregular uterine canal) the bleeding was not stopped. I

therefore decided to ligate the base of the broad ligaments. The patient was sent to the hospital suffering from a bloody discharge which had been almost constant for several months. She was prepared for the operation and placed upon the table, when, upon exposing the cervix with the retractors, we found that she was flowing quite profusely. The cervix was large, blue, and vascular. The parts were large and the operation very easily executed. I placed the ligature on the left side so as to include fully two inches in width of the broad ligament at a distance of at least an inch from the uterus. When I tightened this first ligature one of the spectators, a well-known gynecologist, called my attention to the fact that the cervix had perceptibly paled in appearance. The broad ligament was easily separated on the right side, and fully as much of it ligated as on the left. If there had been any doubt of the procedure affecting the vascularity of the uterus, it vanished when the second ligature was tied. The cervix immediately paled until it was nearly as white as a piece of cartilage.

The covering of the broad ligament was so loosely attached in this case that, for curiosity, I passed my finger up into the folds, when without any difficulty I came upon the main trunk of the ovarian artery, which could have been ligated without penetrating the peritoneal cavity. This convinced me that ligation of the broad ligament could be accomplished to the extent of including both of its blood channels, should it be deemed advisable, and that too, frequently, without penetrating the peritoneal cavity. It was noticeable in this case that the profuse uterine hemorrhage which was present at the beginning of the operation had entirely ceased at its end. The case was treated like the former, left the hospital on the eighth day, and on the fourteenth day saw me at my office. That was yesterday. There has not been the slightest discharge of blood since the operation. The pelvic pressure has been greatly relieved, and the patient speaks of a feeling of lightness in that region. Upon examination the vaginal wounds were found perfectly healed, there was not the slightest pulsation to be felt in the vaginal vault anywhere, and the uterus had perceptibly decreased in size. So much was the apparent diminution that I shall wait with great anxiety for the next visit of the patient in order to convince myself that I have not been deceived.

With the unimportant evidence presented by these two cases,

I submit this preliminary report on an operation which as yet is scarcely more than theoretical. Judging from such a standpoint, I believe it has a future of more than ordinary importance. However, it is in a field where its apparent merits may soon be practically tested. The procedure, fortunately, while presenting great possibilities in results, as an operation will appear in the minor class.

With our present light on the subject I shall make a conscientious effort to see that it is thoroughly tested in the following conditions:

1. Acute hemorrhage of the cervix from all acute or chronic causes which cannot be readily controlled by milder methods, as (*a*) rupture of the cervix in childbirth, by operation or by any other cause; (*b*) cancer of the cervix.

2. Hemorrhage from the body of the uterus as a result of abnormal growths: (*a*) fibromyomata, (*b*) sarcoma, (*c*) carcinoma, (*d*) intractable hemorrhagic endometritis.

3. For the purpose of changing the nutrition of myofibromatous tumors so that they will shrink in size, and, when of small dimensions, disappear altogether.

THE RELATIVE VALUE OF CERTAIN OBSTETRICAL OPERATIONS.¹

(EMBRYOTOMY, CESAREAN SECTION, SYMPHYSIOTOMY.)

BY

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New York.

WHEN requested by the Committee of Arrangements to organize an obstetric discussion for this meeting, I could think of no topic more timely, more worthy of judicial estimation, than that of the limitations of embryotomy, Cesarean section, and symphysiotomy. It is a marked sign of progress in obstetrics that such a discussion is possible at all, of rapid progress within a comparatively short time. Memory need not be taxed much beyond a decade to find practical condemnation of the Cesarean

¹ Remarks in opening the obstetric discussion before the meeting of the State Medical Society, Albany, February 7th, 1893.

section, except in instances where the birth canal was from one or another cause so blocked as to forbid even an embryotomy; and it is only within the past few months that an operation over one hundred years old has seen the dawn of a new birth full of the promise of a green and worthy old age. I deem myself most fortunate, therefore, in having secured the co-operation of distinguished colleagues whose aim it will be to place before you an impartial estimate of the limitations of these obstetric operations, and my peculiar province will be to consider, in brief, certain of the causes which have rendered possible the *elective* surgery which is surely gaining foothold in obstetrics, with the result that two lives are to-day often saved where formerly one was certainly lost and a second greatly imperilled if not also lost.

It is unnecessary to dwell at any length on the predominant influence which has been exerted on obstetrics by antisepsis and asepsis—synonyms for scrupulous cleanliness. Without this factor even embryotomy carried risk to the woman, and the recognition of its stringent necessity enables us to reject embryotomy and to elect either the Cesarean section or symphysiotomy. Equally uncalled for at this time is more than passing reference to the uterine suture which so effectually guards against gaping of the wound and thus removes at once a further source of danger from the Cesarean section. I would dwell more particularly, in general terms, on *the one* great question which renders elective surgery in obstetrics at all possible—accurate pelvimetry—and incidentally I would voice the thought which to-day is uppermost in the mind of every physician: Have we indeed reached the day when destruction of fetal life is not our bounden duty except where maternal life is otherwise greatly jeopardized?

The tendency of the times—and we are to be congratulated that we live in such an age—is to make of obstetrics an exact science. No longer should the guesswork, the trusting-to-nature obstetrics of the past be tolerated. As responsible men, to whom is entrusted the welfare of two lives, it is a duty not to be shirked, and inexcusable if shirked, to familiarize ourselves from the start with the configuration of the pelvis of every woman who entrusts herself to our care during the supremest of her trials; and not alone this, but it is also our duty to determine as accurately as possible the capacity of the fetus for entering the

world with least risk to its mother and to itself. The statement is a most humiliating one to make, but most of us have been in the past, many of us are still, recreant to this duty. How many physicians examine their patients before the onset of labor? How many possess a pelvimeter, or use one if they do? And yet in any case the physician may be called upon to elect one or another obstetric operation—the induction of premature labor, the forceps, version, symphysiotomy, the Cesarean section, even sometimes embryotomy. Exactitude of diagnosis is deemed requisite in other branches of medicine; why should not the same be incumbent on the physician who ventures to care for the pregnant woman? The issue is the same—well-being or ill-being, life or death—nay, it is greater, for not alone is the woman's welfare at stake, but also that of the child. And yet, again, outside of maternity hospitals, it is far too much the routine to take for granted that all is right and to dismiss the gravida from further consideration, aside from casual examination of the urine, until, summoned to her bedside, she is found in labor. Even then it is the exception, rather than the rule, for an examination to be made extending beyond the recognition of the presenting part. All this is reprehensible; all this is doomed to radical change. It needs not my words to remind you that the forceps has its indications and limitations, as also version, the Cesarean section, symphysiotomy, and embryotomy. The time to determine both these indications and these limitations in a given case is before the advent of labor, and the only way we can secure the necessary knowledge is through external pelvimetry, associated, if need be, with internal. Not alone is the type of pelvis to be determined—whether flat-rachitic, generally contracted, etc.—but also, at or near term, is it essential to estimate, by the rather crude methods, I must confess, at our disposal, the probable size of the fetus which must pass the pelvic canal. With such information at his disposal, the physician is not likely, together with his consultants, to attempt to drag through the pelvis by his forceps a fetus which can only be made to fit the pelvis, if at all, at the expense of its life as well as at the expense of the integrity of essential parts of the woman's organism. Neither is he going to continue such fruitless efforts until, the fetus being dead and the woman exhausted if not nearly dead, he concludes that the single possible method of extraction is by an embryotomy. Very crude obstetrics is this, and yet what man present has not wit-

nessed it? The long and short of the whole matter is this: The exact methods which prevail in maternity hospitals must be transported into the private practice even of those whose lot it is to labor amongst the very poor. The dispensary physician, as well as his more favored brother whose calling it is to soothe the pangs of maternity amongst the very rich, should be in a position, from knowledge acquired by careful pelvimetry, to elect at the proper time one or another of the operations the limitations of which are shortly to be considered. This can only be done, obviously, where the acquired knowledge plainly teaches that one or another of the lesser operations (forceps and version) will not avail. The patient must not be made the subject of experiment. The Cesarean section, in particular, is likely to fail in its twofold aim (the saving of mother and child) if it be not resorted to until forceps, and possibly version, have been repeatedly tested. To place the matter in its extremest light—*the physician must be prepared to elect even embryotomy*; for if the living fetus must be sacrificed at all, far better is it that this should be accomplished in a timely fashion rather than when maternal exhaustion is imminent or present. In the latter event the woman may be sacrificed as well.

Two of the operations which will shortly be considered have been devised and have been perfected with the end in view of avoiding mutilation of the living child. The accumulated data of the past teach us very clearly the chances in a given case, through resort to one or another operation, of saving the child without subjecting the woman to extra special risk. Whilst I am not in sympathy with those who claim that under no circumstances should the living fetus be sacrificed, I am prepared to contend that the exceptions to this rule are to-day very few. The technique of the Cesarean section has reached such perfection that in more than one maternity hospital it has over and again been proved that the risk the woman is subjected to is no greater than that which embryotomy entails. Indeed, in one of the maternities with which I am connected the mortality rate, during the same interval, from Cesarean section was *nil*, whilst from embryotomy it was one hundred per cent. As for the recently revived operation of symphysiotomy, the record is as yet a clean one. Is it any wonder, then, that physicians in general are beginning to query as to whether, other things equal, it is a part of their professional duty to take the life of the child when a duly

elected alternate operation will save both the woman and the child. This is a question neither of religion nor of foolish sentimentality; it is not a question of the value of greater or lesser life. In the light of present knowledge it becomes a question of doing our best by two lives instead of simply ignoring one.

I would ask, then, that the limitations of these operations be considered purely from a scientific standpoint. In practice such of late years has been the rule in maternities, and the written record is one of which no physician need be ashamed. When the time is ripe, as it shortly must be, for the application of similar reasoning and rules to our private clientèle, I see no reason to doubt but that the record will be the same. The nature of these limitations it is now the privilege of those who follow me to tersely state.

36 EAST 58TH STREET.

EMBRYOTOMY,
ITS PROGNOSIS AND LIMITATIONS.¹

BY

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(With six illustrations.)

Definition.—It is perhaps best stated here that the general term *embryotomy* is selected to include every operation by which the fetus is diminished in size, whether by cutting or crushing. The term, then, includes:

1. Perforation of the fetal skull.
2. Comminution of the bones of the fetal skull—*cephalotripsy*; *cranioclasm*.
3. Combinations of the above—*basiotripsy*; *basilysis*.
4. Separation of the fetal head from the body—*decapitation*.
5. Opening of the thoracic and abdominal cavities, with the removal of a part or the whole of their contents—*evisceration*.
6. Amputation of extremities.

¹ Read by invitation at the obstetric discussion before the Medical Society of the State of New York, February 8th, 1893.

In a general way it may be stated that operative interference during labor does not markedly increase the maternal mortality, if intelligently carried out. Dühssen¹ reports the results of two hundred and thirty obstetric operations performed in outdoor (polyclinic) practice under strict antisepsis. They included vaginal and uterine tampons for hemorrhage; version in flat pelvis when possible; incisions of cervix and labia for rigidity; forceps, the head being forced to engage by suprapubic pressure when above the brim, and adaptation of the instrument was often elected; the immediate emptying of the uterus by finger or curette in abortion; the removal of adherent placenta under complete anesthesia. Of the two hundred and thirty operations there were three deaths from sepsis and one from eclampsia. The results for the children were also good.

The statement that embryotomy is usually attended by as much danger as Cesarean section is untrue. It is true, moreover, that embryotomy, even in unskilful hands, and particularly in those of one unaccustomed to celiotomy, is by long odds the safer operation in those cases where the absolute indication for Cesarean section does not exist. Leopold,² from 1883 to 1887, performed seventy-one craniotomies, with a mortality of 2.8 per cent. Fehling,³ in Leipzig and Stuttgart, up to 1889, performed twenty-three craniotomies with a mortality of 4.3 per cent. It is interesting to note that in pre-antiseptic times Von Häcker⁴ (Munich), from 1859 to 1879, had twenty-three cases of craniotomy with a mortality of 56.5 per cent. Zweifel⁵ gives the statistics of sixty-eight craniotomies with five deaths; two of the deaths were due to previous rupture of the uterus and three to eclampsia. The maternal mortality, therefore, directly due to the operation, was *nil*. Zweifel states that he himself has never lost a case of craniotomy. John Philips⁶ reports sixteen successful cases of craniotomy for various indications. He adds that ten of the fetuses were probably alive before operation.

The perforation of the after-coming head gives a greater mortality than that of the fore-coming. In Leipzig the mortality

¹ Berliner klinische Wochenschrift, xxiii., xxiv., 1890.

² Kehler, "Lehrbuch der operativen Geburtshülfe," Stuttgart, 1891, p. 223.

³ Loc. cit.

⁴ Loc. cit.

⁵ Therapeutische Monatshefte, February, 1889.

⁶ British Medical Journal, June, 1889.

of the perforation of the fore-coming head was 4.7; after-coming head, in Leipzig, 25 per cent.¹

Lewers, in a paper before the London Obstetrical Society, May 4th, 1892, reported six cases of craniotomy for pelvic contraction. Four were neglected cases, having been hours in labor before delivery was effected. In two delivery was only accomplished with great difficulty. All the cases recovered. In four instances the conjugate was two and a half inches or less. He concluded the Cesarean section should be undertaken as a necessity and not as an operation of election, because the mortality of Cesarean section in London, the operation being performed by operators of acknowledged skill, was still twenty to fifty per cent. Because Sanger, Zweifel, and Leopold on the Continent, and Cameron in Glasgow, have had an exceedingly low rate of mortality (seven to ten per cent), it was no argument in favor of the performance of Cesarean section in London, where the operation, in the hands of "operators of acknowledged competency," still gave a mortality of from twenty to fifty per cent. Cameron² cites the case of a woman who had eleven pregnancies, terminated eight times by embryotomy and three times by induced labor, two at half-term and one at eight months. The last three labors were under his personal care, and he then told the woman that should pregnancy again ensue she must submit to section; and he adds, "I have had no further trouble on her account."

Recently the writer has been called upon to perform embryotomy in three instances upon the dead fetus. In the first instance a partially adherent uterus, as the result of a previous puerperal peritonitis for which celiotomy was performed, together with a state of tetanic contraction, resulted in such a thinning of the lower uterine segment as to render the danger of rupture imminent. The second case was one of flattened pelvis, where compression, shoulder and jaw traction, and the forceps failed to deliver the after-coming head. The last case was one of perforation of the fore-coming head in a primipara with a moderately contracted inlet (three and three-quarter inches) and a large male fetus, the first stage having been allowed to continue without interference until the fetus died. The records of the Lying-in Hospital and of the New York

¹ Kehrer, loc. cit., p. 234.

² British Medical Journal, i., 1891, p. 509.

Maternity show that the three puerperæ made uninterrupted recoveries.

While it is true that in the hospitals of Germany, where the most brilliant results have been obtained from the improved Cesarean section, there have been comparatively few deaths from embryotomy, yet it is not true that embryotomy is attended with no difficulty and that it is easy of performance by the inexperienced. Experience in teaching obstetric operations upon the manikin has demonstrated to the writer that, even with the lesser degrees of contracted inlet, what at first sight appeared a very simple undertaking resulted in failure with the cranioclast, scissors, or cephalotribe. The dangers of embryotomy reside not so much in the perforation or decapitation as in the extraction of the mutilated fetus. It is one thing to open a skull and wash out the brains or sever the neck with Schultze's sickle hook, and quite another to extract the fetus through a cervix perhaps imperfectly dilated and edematous from prolonged pressure, and a pelvis too small to render a cephalotribe safe, and so small that even the cranioclast is with difficulty properly adjusted. The breaking-up of the skull and the removal of the bones piecemeal the writer would never elect, believing, as he does, that such an operation performed within the uterus, whether the cervix be fully or imperfectly dilated, is one of the most dangerous in midwifery.

The mortality rate from embryotomy is undoubtedly rendered higher than it otherwise would be, because of the repeated and unsuccessful attempts at delivery by forceps, version, or traction which we know so often precede it. We find here an explanation of the paradox that the maternal mortality has at times seemed greater in slight than in marked contraction at the inlet, for in the latter useless attempts at delivery were omitted. The rule holds good, however, that the maternal mortality is directly proportionate to the amount of pelvic obstruction. Embryotomy in those instances where the fetal head is larger than usual and the pelvis a trifle under size does not give a high rate of mortality, two to three per cent at most. Given, however, a conjugata vera of two and a quarter inches or under, and we observe the mortality immediately rising to twenty to thirty per cent.

If every physician did but form an estimate of the amount of contraction before labor set in, or early in the first stage—and surely he should be able to, as the promontory of the sacrum is

much more readily reached in a contracted than in the normal pelvis—we would have fewer craniotomies upon the dead fetus to record. Surely in a given instance there can be no difficulty in determining that the conjugata vera is or is not below three inches, and thus decide whether a living child cannot pass through the pelvis but must be delivered by section. When in any doubt respecting the amount of obstruction at the pelvic brim, we should have the gravid or parturient woman placed completely under the influence of chloroform, and then, with the whole hand passed into the pelvis, thoroughly explore the same. “I will assert that the general practitioner must, in the practice of midwifery, be more than a generally useful person, otherwise he will sink to the level of an ignorant midwife. Not only must he be able to form an estimate of the amount of contraction, but, by the patient study of normal cases, qualify himself to form an opinion as to whether it will be impossible for a living child to pass, and also whether, under the circumstances in which he may be placed, it would not be wiser to send the patient where Cesarean section could be safely performed than to extract a mutilated fetus through a minimum diameter. Upon the skill of the medical man who first sees and examines such a case will always rest the fate of the patient, as a surgeon, however well qualified to perform a Cesarean or Porro operation, will not assume the responsibility of deciding whether the case could be terminated by forceps or that abdominal section should absolutely be performed.”¹ Cameron had two cases, within a few days of each other, with a conjugate of about three inches. One fetus weighed nearly nine pounds, and the other was, if anything, smaller than normal. “It is only the skilled practitioner or obstetrician who, influenced by principles and principle, can, under such circumstances, give an opinion worth having, as such men do not allow a love of novelty, a thirst for notoriety, or a fit of heroics to interfere with better judgment. Experience alone will enable one to avoid extreme measures in cases with a conjugate measuring more than three inches, and where, by inducing labor near the eighth month, it may be possible to extract a living child through the natural passages. Where the diameter is much under three inches the child can only be saved by section.”²

¹ Cameron, *British Medical Journal*, 1891, i., p. 509.

² Cameron, *loc. cit.*

To compare the statistics of embryotomy in this country with those of the Continent of Europe is impracticable. There is no disputing the fact that slight degrees of pelvic contraction are much oftener overlooked here than in Europe; repeated and prolonged attempts with the forceps, shoulder or jaw traction, are continued; and embryotomy finally is resorted to, with the soft parts already extensively bruised and the patient more or less shocked by previous unsuccessful attempts at delivery. The writer deems it here not egotistical to state that within the past three years a school of midwifery¹ has risen up in New York City in which, during the year just ended, 2,971 confinements were conducted by its students, in which pelvimetry is daily taught, and in which the pelvimeter and tape measure are as constantly present in the labor bag as the syringe and catheter. Moreover, in the first three years of its existence, just ended, 3,225 confinements were cared for and 665 graduates and students of medicine were instructed in midwifery. It has been stated that in order to obtain the brilliant results of Sanger, Zweifel, and Leopold in Cesarean section, the operation must be performed more frequently. So far as the indication exists in contracted pelves, there are not enough cases, in New York City at least, to furnish obstetricians many operations apiece. Indeed, were the number of operators, eager and ready for the opportunity to perform section, one-quarter what it is at present, there would still not be enough cases to "go round."

Extreme pelvic contraction does not appear to be of common occurrence, hence the absolute indication from this source rarely presents itself. After examining the records of the Lying-in Hospital for the first two years of its existence, during which time 1,154 cases were attended in confinement, and upon whom in many instances pelvimetry was practised at the antepartum examination, the writer cannot find a single instance where a markedly contracted inlet existed, not once was mutilation of the child to diminish its size demanded, nor did the absolute indication from any cause exist for Cesarean section. The nativity of these 1,154 cases of confinement is distributed as follows:²

¹ The Lying-in Hospital of the City of New York, 314 Broome street.

² First and Second Annual Reports of Midwifery Dispensary.

Russia.....	574	Switzerland.....	2
United States.....	212	Sweden.....	2
Ireland.....	82	Syria.....	1
Germany.....	84	Turkey ..	1
Poland.....	35	Nova Scotia.....	1
Austria.....	31	Norway.....	1
England.....	28	Arabia.....	1
Roumania.....	14	Austro-Hungary.....	3
Hungary ..	9	Italy	1
Scotland.....	4	Unknown	65
Holland.....	3		
		Total ..	1154

The writer further finds that of the 3,225 women confined by the students of the Lying-in Hospital in the first three years of its existence ending January 1st, 1893, in only one instance was reduction in size of the fetus demanded on account of a contracted pelvis, and in this case the writer was called upon to perforate and extract an after-coming head, the fetus being dead, where podalic version and repeated attempts at extraction by jaw and shoulder traction, forceps, and expression had failed. In several instances induction of premature labor¹ was demanded, but in not a single instance of the 3,225 did the absolute indication for Cesarean section exist from any cause.

Indications.—The indications requiring embryotomy can most conveniently be considered under two headings:

1. Those that call for the operation in the case of a dead fetus, and
2. Those that demand the operation in the case of the living fetus.

1. *Upon the Dead Fetus.*—Embryotomy upon the dead fetus is demanded in all cases where, the absolute indication for Cesarean section being absent, the extraction of the fetus undiminished in size, or the correction of a malpresentation or position, would result in greater dangers to the mother; and the ghastliness of the procedure should in no instance influence us in favor of the more dangerous means of delivery.

2. *Upon the Living Fetus.*—Is embryotomy upon the living fetus ever justifiable? This hackneyed question has given rise to endless discussion and masses of literature.² Naturally obstetricians range themselves upon two sides. It is the cry of

¹ See New York Medical Record, November 26th, 1892, "Intra-uterine Injections of Glycerin."

² Jahresbericht Geburt und Gyn., 1891, p. 310, twenty-nine papers.

Napoleon, "By all means save the mother," on the one hand, and that of Edward VIII., "Save the child by all means," on the other. There are those who claim that at the present time obstetric surgery has reached such a height of perfection as to always demand a negative answer to the above question. Others we find equally positive in the conviction that under certain circumstances embryotomy upon the living fetus is justifiable at the present day, and, moreover, always will be, although it is but fair to say that the limitations surrounding the operation are of the narrowest. In a discussion¹ before the New York Academy of Medicine, April 16th, 1891, upon this subject, Drs. Garrigues, Lusk, and Jewett expressed the belief that, of Cesarean section and embryotomy, usually embryotomy was the safer operation and, under certain conditions, was to be preferred of the two. Drs. Grandin, Coe, and Murray, while not denying that embryotomy was sometimes demanded upon the living fetus, spoke in favor of the elective Cesarean section. One speaker came out in favor of retaining embryotomy among obstetric operations, even as an operation of choice. The danger from Cesarean section, he thought, was five times as great as from craniotomy.² Another speaker³ considered embryotomy, even performed upon the living child, to have a positive place in obstetrics; still another,⁴ that embryotomy was safer under certain rare emergencies, as where the necessity existed for the rapid termination of labor in the interest of the mother, or where the mother was exhausted and unable to undergo celiotomy.

Until recently, when, during labor, the relative indication existed, namely, the choice lying between embryotomy and Cesarean section, we addressed the patient and her family somewhat as follows: "Cesarean section has its dangers.⁵ Under the very best circumstances in hospital practice from six to ten mothers in every hundred lose their lives, but then the chances of securing a living child are good. Embryotomy is comparatively safe for you, but then of course you lose your child. Hence we would advise

¹ New York Medical Record, November 24th, vol. xxxix, p. 689.

² Garrigues, loc. cit.

³ Lusk, loc. cit.

⁴ Jewett, loc. cit.

⁵ Dr. Robert P. Harris writes me under date of December 27th, 1892, that "the Sanger-Cesarean section in Leipzig, under eight operators, lost two women out of the first thirty-six, all in hospital but one case. This is the best that the operation has done."

you to choose the former operation, because you stand a good chance of obtaining a living child, even if the danger to yourself is five times as great." We all know that the choice of the patient and her family was, in the majority of cases, in favor of the less dangerous operation. Whether we shall lend ourselves to the destruction of a living fetus is quite another question. To-day we can offer to the patient, in those cases of contracted pelvis where the conjugata vera is not under two and five-eighths inches,¹ an operation in which the chances of securing a living child are nine out of ten and the maternal mortality² is *nil*.³ We refer to the operation of symphysiotomy. In those instances, however, where a Nägele⁴ or Roberts pelvis exists, or carcinoma or tumors of the cervix, pelvic exostoses, or other abnormal growths causing obstructed labor, symphysiotomy cannot be expected to avail us anything, and here, the child being alive or dead, a relative or absolute indication may exist for Cesarean section.

How far this revival of pubiotomy will limit the performance of embryotomy upon both the dead and the living fetus, and even the Cesarean operation, subsequent experience alone can determine. A large proportion of the Cesarean section cases of Europe and this country have been within the limits of pubiotomy. Within the past few months several successful cases have been reported from Philadelphia, Brooklyn, Dublin, and Germany.⁵ The addition of pubiotomy to the means at our command for successful delivery in obstructed pelvis will undoubtedly still further narrow the indications for embryotomy

¹ Morisani's minimum conjugate for the operation.

² One fatal case reported was probably of puerperal complication. Another fatal case is reported by Törngren (*Centralblatt für Gynäkologie*, No. 49, 1892, p. 953) where the mother died twenty-four hours after delivery, with fatty heart and chronic nephritis present on post-mortem. The writer knows of another unpublished fatal case not due in any way to operation.

³ Dr. Robert P. Harris writes me: "The maternal mortality of symphysiotomy has not yet been ascertained, for the record of the past seven years has not all been handed in. Twenty-three operators have delivered sixty women in six countries and twelve localities, with one death, not due to the knife. I have seen three operations, and no child or woman was lost and no mother disabled. I cannot say yet how many of the sixty children survived the third day. I know of but one that was absolutely dead when delivered, and I know of eight that did not survive the third day. Two died in the United States.

"PHILADELPHIA, December 27th, 1892."

⁴ See case of ischio-pubiotomy by Pinard.

⁵ Zweifel, *Centralblatt für Gynäkologie*, 1892, No. 44, p. 857.

upon the living child or abolish them altogether. Pinard¹ showed a woman before the Academy of Medicine, January 10th, 1893, with an obliquely contracted pelvis associated with synostosis or ankylosis of the right sacro-iliac synchondrosis, upon whom he had performed a new operation, termed ischio-pubiotomy. Previously she had had five instrumental deliveries with four still-births. The fifth, born asphyxiated, lived five months. With a chain saw Pinard divided the horizontal and descending rami of the pubic bone on the ankylosed side, two inches from the symphysis, and with Tarnier's forceps easily extracted a living child weighing eight pounds. Between one and two inches were gained in the pelvic diameters by the operation. No interference in walking was subsequently experienced.

We may congratulate ourselves that the indications for the destruction of the living fetus have never been so restricted as they are at the present day. A recent writer² upon obstetrics advises craniotomy (perforation) of the fetal head in impacted mento-posterior positions as a *conservative operation*, after referring to two cases where "speedy death in consequence of laceration of the uterus" occurred after forced flexion of the head under complete anesthesia. Yet we find the manual conversion³ of a mento-posterior position within the pelvis into a vertex presentation successfully performed within the past few weeks in New York. The child and pelvis were of normal size, and "it looked seriously as though craniotomy might be demanded." More evidence in favor of the hand as the best obstetric instrument!

Schauta puts the mortality in eclampsia as fifty per cent for the maternal and forty-two per cent for the fetal. In the literature⁴ of the last two years I can find the reports of twelve Cesarean sections performed for eclampsia, with the result of saving six mothers and six children. Halbertsma⁵ reported six cases of Cesarean section performed for eclampsia, with the

¹ The Medical Week., Paris, January 13th, 1893, vol. i., No. 2, p. 20.

² "American System of Obstetrics," vol. i., p. 605.

³ New York Journ. Gyn. and Obstet., vol. xi., No. 20, p. 1134.

⁴ Müller, University Medical Magazine, 1890-91, pp. 111, 741.

⁵ Kaltenbach, University Medical Magazine, 1890-91, pp. 111, 741. Swiecicki, H. von, Die Frauenartz., Berlin, 1891, vi., p. 389. Halbertsma, Verband. Tenth International Congress, Berlin, August, 1890, Bd. cxi., Abt. viii., p. 250. Herff, Otto von, Berlin Klinik, 1891, Hft. 32.

death of one mother; and only one child was lost where the operation was undertaken after the eighth month.

It is impracticable to lay down any positive rules for the performance of either celiotomy or embryotomy, based upon the pelvic measurements, if we leave out of consideration the size of the fetal head. Recently the writer¹ was called upon to induce labor in a case of flattened pelvis during the ninth calendar month of gestation, where the conjugata vera was not over three and a half inches; and although he held himself in readiness to perform version or a difficult forceps extraction, yet the labor terminated spontaneously. The biparietal and bitemporal diameters of the fetal head recorded upon the books of the Lying-in Hospital were three and one-half inches and three inches respectively, thus being each one-quarter inch below the ave-

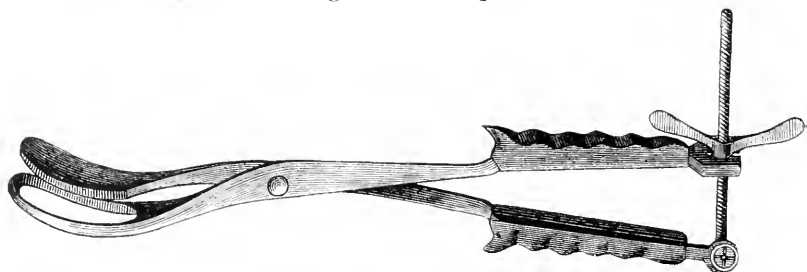


FIG. 1.—Braun's cranioclast.

rage, if we accept the average fetal head diameters as given by Tarnier and Chantrenil, which were averaged from measurements taken with great precision in forty-four cases.² The fetus in this case measured nineteen inches in length and weighed seven and one-half pounds, and is still living.

The Operation.—1. *For perforation.* The writer's choice is for any scissors perforator made after the pattern of Smellie, as easy to manipulate and clean, and as least liable to injure the mother's soft parts or the operator's hand. The trephine and basalist types of perforators possess no advantages over the more simple instrument. Before opening the skull it should be firmly fixed at the pelvic brim by means of a stout volsella forceps or by suprapubic pressure.

¹ New York Medical Record, November 26th, 1892.

² See note in Lusk's "Midwifery," p. 167.

2. *For extraction.* An instrument that will render good service is the long cranioclast of Braun, made entirely of metal,

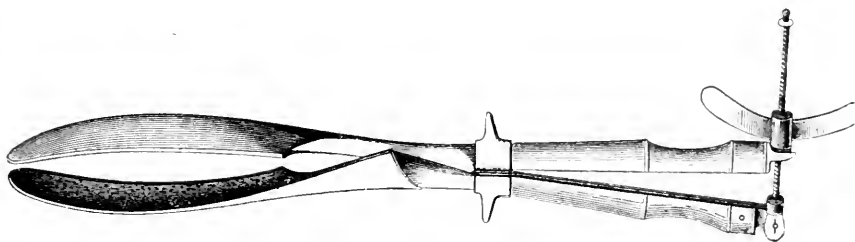


FIG. 2.—Cephalothrypter of Busch.

and it can in most instances be relied upon for extraction to the exclusion of any form of cephalotribe (Fig. 1). For easy

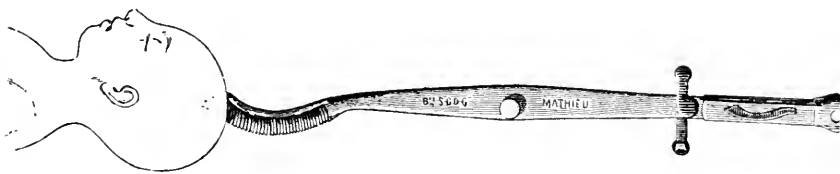


FIG. 3.—Auvard's cranioclast. Inner blade.

extractions, after evacuation of the skull, the first and second fingers, protected with several folds of gauze and introduced

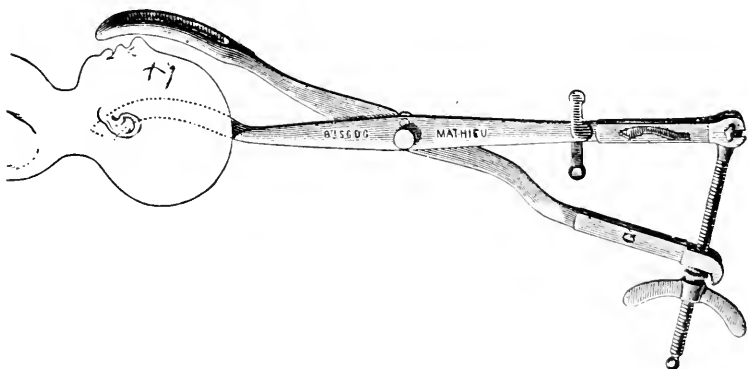


FIG. 4.—Auvard's cranioclast. Inner and second blades in position.

into the fetal skull, has proved an efficient means of delivery. Zweifel¹ describes, illustrates, and strongly recommends the

¹ *Therapeutische Monatshilfe*, February, 1889. "Lehrbuch der Geburtshilfe," Stuttgart, 1892, p. 753.

cephalothrypter of Busch (Fig. 2). Dührssen¹ has found the combined cephalic embryotome of Auvard, which resembles a Simpson-Braun cranioclast with the addition of a third blade to grasp the vertex, to be the best instrument for the combined operation of cranioclasm, cephalotripsy, and extraction (Figs. 3, 4, 5, and 6).

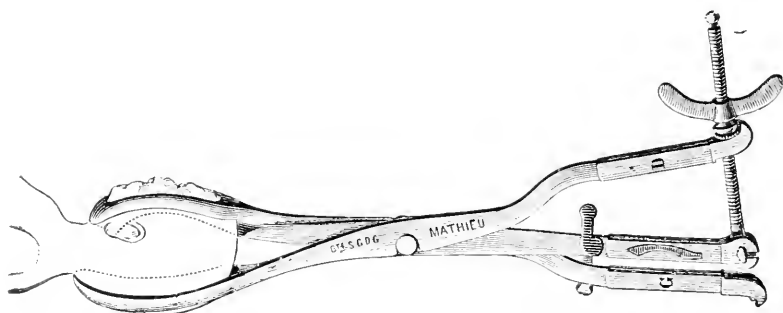


FIG. 5.—Auvard's cranioclast. Face crushed by inner and second blades, vertex being crushed by third blade.

3. *For decapitation.* It is of the utmost importance that the neck be kept as near the pelvic brim as possible. This is best accomplished by means of a sling to a prolapsed arm, and the fingers of the internal hand encircling the neck and producing traction thereon. If the whole of the elected hand is intro-

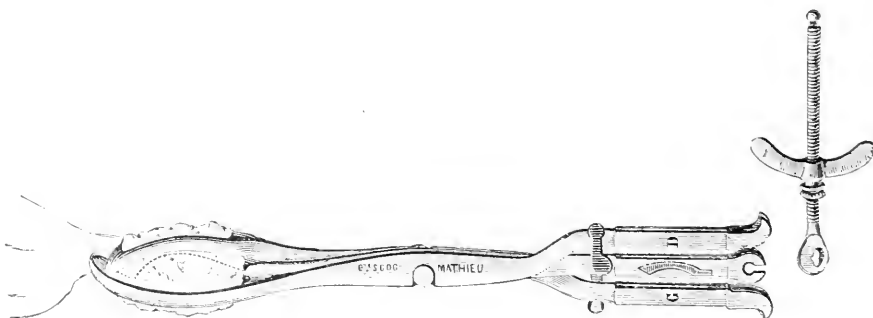


FIG. 6.—Auvard's cranioclast. Fetal head crushed by all three blades, and ready for extraction.

duced into the pelvis, the thumb, first and second fingers encircle the neck, and separation is best effected by means of Dubois' scissors or Schultze's sickle.

Conclusions.—A. *Embryotomy upon the dead fetus.* Embry-

¹ Geburtshülfe, Berlin, 1891, p. 166.

otomy upon the *dead* fetus is demanded when, the absolute indication for Cesarean section being absent, the extraction of the fetus undiminished in size would increase the dangers to the mother.

(a) This indication includes moderate degrees of pelvic contraction, malpresentations and positions, deformities of the fetus, and slight obstruction in the soft parts.

(b) In markedly contracted pelves, with a transverse diameter at the inlet of at least three inches and a conjugata vera little under two and five-eighths inches, embryotomy, in combination, if need be, with pubiotomy (embryo-pubiotomy), other things being equal, will be indicated.

(c) In instances where the conjugata vera is much under two and five-eighths inches, when labor is obstructed by fixed pelvic tumor, extensive exostosis, advanced cancer of the cervix, celiotomy is to be preferred whether the fetus be dead or alive.

(d) Where the mother's condition demands rapid delivery, and the absolute indication for Cesarean section is absent.

B. *Embryotomy upon the living fetus.* (a) Embryotomy upon the *living* fetus is indicated during labor whenever the relative indication exists and the physical signs indicate that the life of the fetus is practically lost.

(b) In certain rare instances, also, when the condition of the mother is such (temperature, pulse, dangerous thinning of the lower uterine segment), whether from repeated unsuccessful attempts at delivery or prolonged labor, as to render embryotomy by far the safer operation.

(c) In obstructed labor due to monstrosities.

115 EAST 35TH STREET.

THE LIMITATIONS OF CESAREAN SECTION.

BY

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THE introduction of the Porro, and the modified Porro or Porro-Müller, operation marked an era in obstetrics: the extreme fatality of the operation disappointed its advocates and prepared

¹ Read as a part of the obstetrical discussion before the New York State Medical Society, Albany, February 8th, 1893.

the way for the prompt reception of the new or improved Cesarean section.

The new Cesarean section, by means of a more perfect technique, asepsis, and more perfect diagnosis of the conditions demanding operation, has continued to grow more in favor, has been oftener and more successfully done, and the dread of embryotomy and cephalotripsy on the living child has departed. Certainly this is true in hospital, and it should be just as true in private practice. American obstetricians are much behind the European, particularly the Germans, in number of operations, and there are no large number of successes to be claimed for one operator, but, what is better, the conditions are being determined, the technique perfected, the general practitioner is being educated to the point of examining his patient before labor, the colleges are giving generally faithful instruction in the necessity of a knowledge of pelvimetry, and technical skill in obstetrics is recognized. To determine the limitations of such an operation as the Cesarean section it must be premised that the operation should be always, if possible, elective, and not the *dernier ressort* when, all other obstetric procedure having been unsuccessfully tried, nothing is left but to deliver the patient at all hazards, that she may not die undelivered.

No operation ought to be criticised if the surroundings and condition of the patient are such as to be almost of necessity conducive to fatal issue. Yet these very conditions have been, and even now frequently are, those which the consulting obstetrician has to meet. An expert should do the operation, one who is a competent obstetrician, and at the same time fully prepared to do aseptic abdominal surgery.

The dangers of the operation are, generally speaking, but three, shock, hemorrhage, and sepsis. Shock may be avoided by a proper study of the case, by the determination of the pelvic measurements before labor, and also the measurement, as far as possible, of the child's head, with a history properly taken of the patient. These points, I believe, should be imperative in every general practitioner; these are the points which insure success in all obstetric operations. I believe any physician who agrees to attend an obstetric case and does not fulfil these requirements has not a proper idea of the responsibilities resting on him, and is to blame for the bad results either to mother or child.

Hemorrhage can be prevented by manual compression of the

cervix at the time of incision of the uterus, and by obtaining full contraction. As Dr. Harris has shown in his paper, the fatal issue is not due to hemorrhage, even after accidental tearing of the uterus, horn rips, etc.. The elastic tourniquet may be dispensed with, as Treub's case shows that it may sometimes paralyze the uterus.

Sepsis may and should always be prevented by cleanliness of the skin, operator, suture materials, and instruments. I believe the uterus should be incised *in situ*, and in the six operations I have seen, and in the one I have done, I have not observed any bad consequences from blood or liquor amnii getting into the peritoneal cavity.

The suture material should be thoroughly aseptic, and the sutures should be in two rows, deep and superficial, with some peritoneal sutures sufficient to thoroughly close the wound off from the peritoneal cavity by union of the two opposed surfaces of the peritoneum; without this last procedure the operation should not be designated the improved Cesarean section. An operation so conducted should give statistics fully equal if not better than ovariectomy. The patient is healthy; there have been no ineffectual efforts at delivery, sepsis of the vaginal canal, or delay; it has been elective. The operation may—and some of the best operators, Zweifel, Kelly, and Harris amongst our authorities, think it should be—done at a time convenient to the operator, and this without prejudice to the patient, as the uterus contracts firmly on being evacuated, and the cervical canal is patulous enough for drainage or may be drained by iodoform gauze.

The operation is absolutely indicated in any pelvis whose diameters are below two and three-quarter inches conjugata vera, with a living child; in cancer of the cervix, where to be successful it should be done before labor; in the Roberts or the Nägele pelvis, which are unsuitable for symphysiotomy; and again where tumors so contract the birth canal as to render the birth of a living child impossible. Abroad the operation has been done most frequently for the flat, rachitic pelvis—a deformity which is not at all frequent here, except among the foreign-born.

According to Reynolds,¹ of Boston, whose statistics I judge fairly representative, out of two thousand two hundred and twenty-seven cases of labor there were thirty cases of deformed

¹ American Gynecological Transactions, vol. xv.

pelvis; of the five hundred and eighty-one American cases there were two cases only deformed, and the pelvis was of the just-minor or generally contracted type—and this is the type which has been almost universally observed in Americans, except in the colored race of the South. To this must be added another factor which I believe causes the greatest fetal mortality—the larger size and greater weight of the average American child, which causes a relative deformity: the hospital weight of infants being about seven to seven and a half pounds; in private, where accurate weight is taken, much more; while in Europe the average weight is about six pounds. A pelvis that might measure three and a half or even four inches *conjugata vera*, with proportionate transverse diameters, might be incapable of passing a large child's head, even after version, and perforation would be required if symphysiotomy were not done.

The determination of the size of the child's head is important as a factor in all elective obstetrical operations, if a living child is to be obtained.

The Porro operation, with its modifications, adds to the risk of the Cesarean section the shock of uterine amputation, and in the case of tumors entire removal; so that we would expect and find a greater mortality, particularly as it has often been done for a dead fetus, and with profound sepsis in the patient. In the latter condition, where labor has been mismanaged, the Porro operation should be better than the classical Cesarean section.

Cesarean section, when there have been good obstetrics and good surgery, has given in the hands of Zweifel, in thirteen hospital cases consecutively, a favorable result; and seven other operators in Leipzig, who collectively had made thirty-six sections in eleven years prior to Zweifel's fatal case, lost but two women and two children, or five and five-ninths per cent. Prof. Howard Kelly has had four successful cases; Dr. Wm. T. Lusk, four successes out of six cases. In the Maternity there have been five cases with five successes by four different operators.

Symphysiotomy has lately, after the learned article of Dr. Harris before the American Gynecological Society in 1892, come before us, and bids fair, by its endeavor to save the child, to prove a strong competitor and to limit the sphere of the Cesarean section. The operation is done in pelvises whose *conjugata vera* is as low as two and three-eighths inches, but may be done, as in Prof. Freund's case, where the conjugate is as

large as four inches, if the previous history show that a moderate-sized child cannot pass without probable craniotomy. Indeed, after experiencing the difficulty of extraction after pubiotomy in a recent case at the New York Maternity, I felt, though version had preceded the pubiotomy, that mother and child would have had a better chance by a section. The conjugata vera was two and three quarter inches; the patient 28 years old, primipara; child weighed seven and a half pounds; biparietal diameter, four and a half inches.

It must, however, be exceptional that a child of seven and a half pounds can be delivered in a pelvis of even two and three-eighths inches alive by pubiotomy, and I am inclined to believe that in the hands of American operators it will find its best scope in moderate deformities of the justo-minor type of three and a half to four inches conjugate, or in bad presentations where the child's head is large, and thus save from craniotomy, more especially as the forceps may be tried first.

Its apparent simplicity of execution will, I am afraid, prompt some to undertake it who are neither good obstetricians nor good surgeons, who would be averse to Cesarean section, and thereby bring the operation into disrepute. The man who does a symphysiotomy should be an expert who is able to do a Cesarean section and know when it should be done.

A somewhat large class of cases will remain on the border line where only the judgment of the accomplished surgeon and obstetrician can decide which is the best operation in any particular instance.

Circumstances surrounding the patient will also decide, as pubiotomy is not near as formidable in its appearance, and the operator only comes in contact with the patient, so that asepsis may be easier in accomplishment.

Craniotomy will then be relegated to its proper place as an operation on the dead fetus to save the mother, and not to destroy a living child.

In Prof. Harris' paper on pubiotomy¹ a list is given of symphysiotomies from January, 1886, to July 11th, 1892, forty-four cases, with the recovery of all but one woman and the loss of but five children. This is certainly very flattering to the operation; but the average weight of the child, with but a few exceptions, has been seven pounds or under, and the biparietal

¹ American Gynecological Transactions, vol. xvii., 1892.

diameter in but one case over four inches, the average being about three and a half inches. These measurements are much below those of the average child here, so that judgment and experience will alone decide the future of this operation.

In private practice there is always a dread of the Cesarean section, and almost any operator will find it easier to obtain assent to a craniotomy than to a section, and in some cases it is impossible to obtain conditions necessary to success; in such a difficulty pubiotomy may be substituted and still the child be born dead by fetal compression.

Craniotomy in Leopold's hands has had but two per cent mortality, and in Zweifel's and others' the mortality has been *nil*. The same operators have had very nearly as good results from the Cesarean section. If we take into account that they have almost universally, I believe, saved the child by the Cesarean section, should not the slight extra hazard be taken by the patient? At the least the dangers of both operations should be clearly stated to the patient and her husband, and an endeavor should be made to save the child.

I believe craniotomy should be done in certain instances where the child is alive, as in hydrocephalus, where the child has so little chance even if born alive, also in the case of locked twins that have been mismanaged; but I think the child should always, if possible, be given a chance.

In conclusion:

1. Cesarean section should be done always where the conjugata vera is below two and three-quarter inches.
2. It should be done in the Roberts or Nägele pelvis with marked deformity, or where there is fixation of one or both sacro-iliac synchondroses from diseases—cases in which pubiotomy would be ineffective.
3. It is the best operation with diameters even larger than two and three-quarter inches, when the child's head is large and could not probably pass with a living child if pubiotomy were done.
4. Where tumors or exostoses are present the Cesarean section or the Porro operation is the best.
5. In cases of cancer of the cervix it should be chosen rather than pubiotomy, and should be done before labor sets in, so that no sepsis result.
6. The size of the child's head, in moderate contractions at the

superior strait, will oftentimes be the determining factor as to whether an elective Cesarean section or a pubiotomy be the best operation.

235 WEST 23D STREET.

CANCER OF THE CERVIX UTERI COMPLICATING PREGNANCY.¹

BY

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THAT cancer of the cervix does not prevent impregnation is a fact so well known as to require no comment; indeed, every gynecologist can recall cases in which it has occurred at such an advanced stage of the disease as to seem almost incredible. The presence of extensive necrosis, with a constant acrid discharge, has seemed to be no bar to the activity and progress of the spermatozoa, provided that there was not actual mechanical obstruction in the form of extreme cicatricial contraction of the canal. The history of Cesarean section furnishes numerous examples of this, and I could cite others in which pregnancy advanced several months in patients with incurable malignant disease of the cervix uteri, and was entirely unsuspected until abortion followed a palliative operation. I believe that, under some circumstances, incipient epithelioma actually favors conception in those who have been long sterile, by determining an unusual flow of blood to the uterus and thus increasing, so to speak, the receptivity of the endometrium. This result must of course be exceptional, and presupposes the absence of that condition of hyperplastic endometritis which so commonly accompanies cancer of the cervix uteri, being the result of continued congestion, and the direct cause of the menorrhagia that is one of the early signs of commencing malignant disease.

Another equally well-known fact is the stimulus given to the growth of carcinoma of the cervix after the puerperium. This is most striking in the case of young women who have borne several children in rapid succession, and in whom the disease has developed from an extensive laceration with erosion. I

¹ Read at a meeting of the New York County Medical Society, January 23d, 1893.

have seen several mournful examples at the New York Cancer Hospital in women between 24 and 30, apparently in perfect health, whose symptoms were of only three or four months' duration, dating from the last confinement. Examination showed advanced epithelioma of a peculiarly exuberant type, giving rise to profuse and exhaustive hemorrhages, and in marked contrast to the slow-growing, indurated form of later life with its slight bleeding and discharge. In each instance there was no history of any disturbance during the pregnancy, or of dystocia—leading to the inference that the rapid development of the disease had been *since*, rather than *before*, parturition.

Although inferences based upon a single case may possess little value from a scientific standpoint, I venture to present the following because of the long and careful observations which were made and the fact that it at least teaches a valuable clinical lesson. The questions at issue were of vital importance and called for just such a decision as every physician may be obliged to make. For the private practice of obstetrics is quite different from that in maternity hospitals; concessions must be made and methods of procedure must be modified in a manner that would be inadmissible in a well-conducted lying-in asylum. The life of the child under the former circumstances assumes an importance not always assigned to it in maternities.

Mrs. E., æt. 42, an actress, consulted Dr. Edward Reynolds, of Boston, August 3d, 1890. She had been married fifteen years and had never been pregnant. From the notes which the doctor has kindly sent me I make this extract: "The os was about the size of a No. 16 urethral sound; the surrounding portion of the cervix looked slightly eroded, as if by an acrid discharge, and there was no laceration. The lumen of the os was occupied by numerous finger-like processes, decidedly papillomatous in appearance, which protruded from an eighth to a quarter of an inch and bled freely at the lightest touch. On August 31st I enucleated the surface with a sharp spoon, and found it so extensively infiltrated that I removed the greater part of the infravaginal cervix, leaving a cavity the size of an English walnut, which was powdered with persulphate of iron. October 6th the patient made her last visit to my office, when I made the note: 'The cervix has involuted with much rapidity and the infravaginal portion is now very small. But little

trace of the operation remains, the os having drawn down into a very natural appearance.”

[The tissue removed was examined at the pathological laboratory of the Harvard Medical School and was pronounced to be carcinoma.]

I saw the patient for the first time on April 4th, 1891. She was then about four and a half months pregnant and was in good health, being able to fill her regular professional engagements. She had no pain, hemorrhage, or vaginal discharge, except an occasional slight “show.” On examination I found the os patulous, its edges hard and cartilaginous; at the bottom of the excavation left after the operation the tissue presented an angry, eroded appearance and bled freely on touching it. Learning that Dr. Reynolds had seen her a few weeks before and had advised the induction of abortion, followed by a subsequent radical operation, I was at first inclined to urge the same treatment. But, as the patient was anxious to have a child and was willing to take considerable risks, I told her that I would keep her under close observation, and would interfere only if the disease showed evidences of developing rapidly. I was able to see her only at intervals of a fortnight during the next three months, as she had engagements out of town. Her pregnancy was entirely normal, and there was a distinct improvement in the local condition under such simple treatment as creolin douches and an occasional application of tannin and iodoform. She consented to remain at home during the last two months of pregnancy.

I explained to her clearly the possible dangers of parturition, due to the cicatricial condition of the cervix, and looked forward to the onset of labor with more apprehension than she herself. The pains began about noon on August 29th. Acting according to a plan which I had before decided upon, I did not wait for dilatation, but as soon as possible introduced the smallest Barnes’ bag, for the purpose of softening the cicatricial ring. This was followed by a larger one after a couple of hours, and dilatation then proceeded normally. The head (which was fortunately small) engaged well, and early the next morning I was able to deliver by low forceps a healthy child weighing six and a half pounds. There was no hemorrhage (except from a slight tear in the vestibule), and the uterus contracted perfectly. The convalescence was entirely afebrile and the patient was up

on the tenth day. Strict aseptic precautions were observed before, during, and after labor.

Four weeks after delivery the uterus had undergone perfect involution (though it was in right latero-flexion) and the cervix presented the same appearance as before, only a few slight fissures being visible in its border. I began to question the diagnosis of malignant disease, and excised a piece of the most suspicious tissue for examination. A competent pathologist could find no positive evidence of epithelioma. Two months after her confinement the woman returned to the stage, apparently as well as ever. Dr. Reynolds saw her a month later and was astonished at the improvement that had taken place in her local condition, though he felt, as I had done since her delivery, a suspicious induration at the base of the right broad ligament. The uterus was retroverted and the cervix drawn somewhat to the left.

I saw the patient after this only at long intervals. Although she was working hard, her local and general condition remained good. She had no hemorrhage, no pain even during coitus (her husband was a vigorous man, several years younger than herself), and no discharge. She used creolin douches regularly, but had no local treatment. From the spring until the fall of 1892 she was in the West, and I did not hear from her for four or five months, when she wrote that she was flowing considerably and that her health was deteriorating rapidly. I advised her to report to me as soon as she returned to the city, which she did the middle of September. There was a striking change in her appearance. She was considerably emaciated and bore the evidence of serious disease. On inspecting the cervix there was no longer any doubt as to the existence of rapidly advancing malignant disease, which had extended to the os internum and had involved the upper third of the vagina. I advised immediate operation, either palliative or radical, and she entered the Cancer Hospital a few days later. I performed vaginal hysterectomy without much difficulty, removing the upper fourth of the vagina with the uterus. There was a suspicious induration at the base of the right broad ligament, but no other evidence of cancerous infiltration. Convalescence was rapid and afebrile, though the wound was so much larger than usual that the patient was not discharged until four weeks had elapsed. I have examined her carefully within the past week and find a small

granulating surface in one angle of the cicatrix, but no suspicious appearance or induration. She is in excellent health and is about to resume her work.

I have cited this case, not because it presents any remarkable features, but in order to emphasize a single point—what may be termed the “expectant treatment” of pregnancy complicated with cancer of the cervix uteri. Although I treated the case according to a plan previously developed by myself, it has no claim to originality, since we find by reference to the literature of the subject that it was long ago perfected in ante-surgical days, and that several similar cases have been recorded. In view of our present strong operative tendencies, it is well to remember that we have still much to learn from our more conservative predecessors.

I may be pardoned for alluding to a few interesting facts in connection with this complication of pregnancy. According to Guéniot, pregnancy can take place only during the initial stage of cancer of the cervix, before ulceration occurs, since the spermatozoa are either destroyed by the acrid discharge, or are prevented, by reason of cicatricial stenosis of the canal, from entering the uterus. As I stated before, I am inclined to believe that this idea is to some extent theoretical, having myself noted cases of advanced epithelioma in which impregnation was effected. Cohnstein also denies this, placing in evidence one hundred and twenty-seven cases, in one-sixth of which number the disease was of several months' standing. He calls attention to the interesting fact that in only ten cases was the disease of the cauliflower variety.

Pregnancy is not likely to be interrupted unless the disease extends as high as the os internum; though there seems to be some difference of opinion on this point. Lewes having noted forty per cent of abortions in one hundred and twenty cases, while Cohnstein's statistics show sixty-eight deliveries at term in one hundred cases. In five per cent of the latter's cases the patient's health was not affected, though, as a rule, emaciation, fever, edema, and severe local pains were noted. Charpentier entertains a somewhat different opinion from Gusserow regarding the influence of pregnancy on the growth of cancer, affirming that if it begins to develop during pregnancy it makes rapid advances, whereas if the disease has existed for some time prior to conception it is favorably influenced by preg-

nancy, as shown by the cessation of pain and hemorrhage, and marked improvement in the general health, at least during the early months. Ulceration (according to the same writer) rarely occurs in the pregnant uterus, and, contrary to its mode of extension in the non-gravid organ, cancer seldom invades the corpus uteri, bladder, or vagina. These statements, it seems to me, can be generally applied only to incipient epithelioma.

In regard to the diagnosis, it is important to note that the significance of irregular hemorrhage during pregnancy may be misinterpreted, being referred to placenta previa, "erosion of the cervix," etc., rather than to malignant disease. The absence of a foul discharge, or impairment of the general health, is of course no criterion.

The natural progress of labor complicated with malignant disease of the cervix uteri has been carefully studied. When it is confined to one lip spontaneous delivery is the rule, the prognosis for both mother and child being better when the posterior lip is affected. When the entire portio is diseased spontaneous delivery is less common, and there is always immediate risk of deep multiple lacerations of the cervix, or rupture of the uterus, and subsequent danger of hemorrhage and septicemia. Chantreuil's statistics (sixty-eight cases) show a maternal mortality during and after delivery of nearly thirty-seven per cent, the fetal mortality being forty per cent; while Colnstein (one hundred and twenty-six cases) shows a mortality of twelve per cent for the mothers and nearly thirty-nine per cent for the children.

I shall not burden you with numerous references to the literature of the subject. It appears to have received especial attention from the London Obstetrical Society, in the Transactions of which learned body appear several valuable papers and discussions,¹ notably contributions by Edis, Galabin, and Herman. The latter, after analyzing one hundred and eighty cases of pregnancy complicated with cancer of the cervix,² arrives at the following conclusions: 1. Cancer is not favorable to conception; if this occurs the tendency is to death and premature expulsion of the fetus. 2. Cancer develops rapidly during pregnancy, but the local condition may improve after delivery. 3. Even when the entire cervix is diseased labor may be easy and the patient may live for several months afterward.

¹ See also Oldham, Guy's Hospital Reports, series 2, vol. vii., 1851-52, p. 426.

² Transactions London Obstetrical Society, October, 1878.

4. When delivery is spontaneous dilatation usually occurs by multiple fissure of the cervix; these lesions do not appear to add to the mother's risks, hence incisions may be safely made by the accoucheur. 5. If the cervix is the seat of a large, *hard* tumor delivery *per vias naturales* cannot be expected; in other cases we have no definite criteria by which to judge beforehand of the dilatation of the os during labor. He lays down the following rules for the guidance of the obstetrician: If the diseased tissue can be excised during pregnancy or parturition, this should be done; if not, terminate the pregnancy as soon as possible. During labor dilatation should be aided by making multiple incisions in the cervix. If the pains are inefficient the application of high forceps is preferable to version. When no dilatation occurs after incision of the cervix, and the cancerous mass is very large, the child being vigorous, there is no alternative but Cesarean section.

Edis¹ reports the case of a woman with advanced malignant disease of the cervix who was delivered of a healthy child at term by high forceps, the mother dying of sepsis three weeks later. In the discussion which followed Barnes stated that he had seen several cases similar to that cited, one woman with cancer of the cervix having been delivered *twice*. Priestley and Aveling thought that Cesarean section was not justifiable when the disease did not involve the entire cervix.

Galabin² reports two cases of delivery at term after dilatation of the cancerous cervix with Barnes' bags, one child being delivered by craniotomy and one (living) being extracted after bipolar version. Both mothers made a good recovery, and one became pregnant four months later. Braxton Hicks, in the discussion of Herman's paper, favored dilatation with the bags instead of multiple incisions, and was opposed to either forceps or version.

Turnbull³ reports the case of an old multipara, at term, with a large, friable, cancerous mass on the posterior lip. After being in labor for four days, during which time the cervix dilated only slightly, the patient had a severe hemorrhage and the pains ceased entirely. Manual dilatation was then effected sufficiently to introduce long forceps and deliver a

¹ Transactions London Obstetrical Society, 1875.

² *Ibid.*, 1876.

³ *Lancet*, vol. ii., 1880, p. 891.

large living child. There was no further bleeding (though the posterior lip was torn away), and the patient had a rapid convalescence, dying seven months later. [This was clearly a case in which dilatation could have been readily effected by Barnes' bags early in the labor, thus sparing the patient unnecessary suffering and risk.]

Heinricius¹ reports the case of a multipara with cancer of the cervix in whom labor and the puerperium were perfectly normal. The patient subsequently had a radical operation, which she survived for a year. He insists that the interests of the child should be held paramount, and that pregnancy should therefore not be interrupted.

Von Huff² mentions an interesting case in which pregnancy was normal and the first stage was delayed through non-dilatation of the cervix. Multiple incisions were made, but without effect. Preparations were completed for Cesarean section, but before resorting to it deeper incisions were made in the cervix; the pains became harder, and the spontaneous delivery of a vigorous child occurred, the mother making a good recovery. In contrast to this conservative mode of treatment we note occasional reports in foreign journals of vaginal or abdominal hysterectomy for removal of the cancerous pregnant uterus, usually before the fourth month, but in one instance at the sixth.³

Möller⁴ reports a case of extirpation of the uterus (after Cesarean section) at the beginning of labor at full term, the child being saved and the mother being free from recurrence several months later, an operation, to my mind, not only more brilliant, but more rational, than Cesarean section, since it aims at prolonging the mother's life as well as saving the child's, instead of simply leaving the former to her fate—providing that she survives the operation.

In spite of Edis' statement that "a larger proportion of patients have recovered in England after Cesarean section for cancer of the uterus than for any other form of dystocia," unless the operation can be performed before labor (as in Goodell's two successful cases) the result to the mother is always doubt-

¹ *Nouv. Arch. d'Obstétrique et de Gyn.*, No. 4, 1888.

² *Centralblatt für Gynäkologie*, No. 50, 1891.

³ *Stocker, Centralblatt für Gynäkologie*, No. 32, 1892.

⁴ *Centralblatt für Gynäkologie*, No. 6, 1892.

ful, by reason of her weakened condition and the difficulty of eliminating sepsis, which can now be done so surely in elective non-malignant cases. As Dr. Harris says in a personal letter, "When Great Britain saved sixteen out of her first hundred Cesarean cases, she did best with cancer subjects for the reason that the operations were of necessity *elective*." Certainly in this country our statistics have been seriously affected by section in this class of cases.

My intention being to present a short, practical paper, I shall resist the temptation to discuss at length the relative advantages of different obstetric procedures, and shall simply offer such deductions as seem to be warranted by the facts in my own case and similar ones which have been recorded, bearing in mind the different attitude which we must assume in private and hospital practice.

1. There is no question that for a woman with cancer of the cervix uteri to become pregnant is to be greatly deplored, so that if we are aware of the existence of incipient malignant disease we should warn the patient against this danger—assuming that an immediate operation is declined. If she is seen for the first time when less than three months pregnant, I would not hesitate, in the interests of the mother, with her full consent and after obtaining counsel, to either amputate the cervix at once, or, better, to first induce abortion and subsequently to operate. This I have done with the most satisfactory results. The former plan is not devoid of danger from abortion and profuse hemorrhage following the operation, as I have noted. Abortion does not always follow, but it is the rule if the operation is done thoroughly, as it should be.

2. After the third month I would proceed just as I did in the case cited, acting in the interests of both mother and child. This involves assuming considerable responsibility, but with the patient under constant observation, and treatment with astringents and antiseptics, she ought to be brought safely through pregnancy, unless the disease extends rapidly and involves the peri-uterine tissues. If it does, there is no object in operating, since the mother will not be cured and the child will be sacrificed. The cautious use of the sharp spoon and thermo-cautery around, not *in*, the cervical canal, may serve to arrest its progress until term. I believe, with Charpentier, that if there is cicatricial stenosis the mother runs almost as much risk from premature delivery as from labor at term.

3. Having become familiar with the character of the cervix during pregnancy, the accoucheur will be able to form some idea of its probable behavior during the stage of dilatation. If the disease is limited, it may proceed normally, patience and non-interference being required. If, as in my case (where there had been a previous operation), there is a complete cicatricial ring, it is undoubtedly better to utilize at the outset the softening effect of the rubber bags, rather than to allow the patient to become exhausted by ineffectual efforts. I was prepared to make multiple incisions if necessary, but such a proceeding might be attended with risk if there was much vascular, friable tissue and the peri-uterine tissues or vesicovaginal septum were infiltrated. How long shall we wait before attempting instrumental or manual delivery, and what are the relative indications? Charpentier, following Baudelocque, says, as soon as labor has begun be ready to incise and apply forceps—which they prefer to version. Statistics certainly seem to justify this preference, since only eighteen per cent of the mothers and twelve and a half per cent of the children were saved by version, while in forceps deliveries the maternal mortality has been but twenty-five per cent and the fetal fifty per cent. Craniotomy does not seem to have been successful, since Cohnstein records four deaths in six cases. It goes without saying that the strictest asepsis must be observed in the presence of this complication of labor.

5. Finally, there remains Cæsarean section, to which the rule applies I have strongly emphasized in a recent paper, that

“ If it were done when 'tis done, then 'twere well
It were done quickly.”

In other words, in an advanced case of cancer, with extensive infiltration and cicatricial stenosis, why wait until labor begins, at the risk of exhaustion and septic infection to the mother and premature death of the child? Why not operate two or three weeks before term? I assume, of course, that we have carefully studied the local conditions and decided that the child would certainly be sacrificed and the mother's life placed in jeopardy by an attempt to deliver *per vias naturales*.

It seems hardly necessary to add that we should lose no time in operating upon the uterus after the puerperium.

COLPO-HYSTERECTOMY FOR MALIGNANT DISEASE—SOME
CONSIDERATIONS IN REGARD TO THE OPERATION,
TECHNIQUE, ETC.

WITH A REPORT OF MY FIRST FIVE CASES.

BY

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THESE five operations were performed in 1887. I have purposely delayed reporting them,¹ to see what time would prove as to the results. Many women had previously consulted me for cancer of the uterus; some I tried to help; yet for none did I consider a radical operation advisable. In all, the disease had extended beyond the uterus and other structures were involved. Greig Smith,² in discussing the indications for colpo-hysterectomy, gives the following rule: "The patient must be in fair health; marked anemia, cachexia, or a faulty condition of the vital organs forbids operation." By this, certainly, these patients were condemned. So, indeed, were all those whose histories are given below. All had marked anemia, all were cachectic, all had a faulty condition of the vital organs, and each of them had been out of health for a considerable period. Only the third case gave promise of ultimate recovery; the operation, for the others, was undertaken as a last resort, with almost a fear that they could not survive, but it was the only thing that gave the least prospect of saving their lives or lessening their sufferings.

CASE I.—Mrs. K. called at Fleet Place Dispensary May 30th, 1887. She was 62 years of age, married thirty-one years, and had four children, the youngest 19 years old; said she had not been well since the birth of this child. Menstruation appeared at the age of 16, was regular, stopped at 44, reappeared at 48, and for the last few months there had been a constant bloody and watery discharge. The patient was feeble, emaciated, no appetite, suffered great pain, and asked to be admitted to the hospital. Carcinoma of the uterus was diagnosed, and, as far as I could judge, the cancer

¹ The specimens were presented before the New York Pathological Society.

² "Abdominal Surgery," p. 214.

had not invaded the surrounding tissues, so if the operation was performed without delay there might be hope. I determined to save the woman if possible. On the 4th of June, 1887, assisted by Dr. Charles N. D. Jones, I removed the entire uterus. First the cancerous tissue was curetted away, the parts cleansed and disinfected, and a circular incision was made around the cervix; I then separated the vaginal tissues, keeping close to the uterus, opened into the peritoneal cavity anteriorly and posteriorly, tied the broad ligaments on each side, and delivered without retroversion or anteversion. The vagino-peritoneal wound was left unclosed and the vagina packed with iodoform gauze. The patient made an excellent recovery; her temperature at no time was above $99\frac{1}{2}^{\circ}$ F. At the end of two and one-half weeks she was able to be up, had a good appetite, and gained in health and strength. November 12th, 1887, she says she is better and more comfortable than she has been for many years. Fourteen months after the operation she was enjoying comparatively good health and able to do her usual amount of work. For a while we heard from her occasionally; each time she was doing well. After this the patient disappeared from view; still, by the operation she was relieved of suffering and restored to comparative health and vigor.

CASE II.—Mrs. E. first consulted me July 22d, 1887, at the Throop Avenue Dispensary; she was 49 years of age; married eighteen years; had nine children, the youngest 11 years old; says she has been sick since the birth of this child, and now complains of pain in her back, severe shooting and darting pains through the pelvis, and the last few months has had a profuse watery and bloody discharge.

I found a deeply lacerated cervix in a state of ulceration, and from it was issuing an offensive flow streaked with blood and coming away in immense quantities. I excised a few granulations from the cervix, and sent them to Dr. C. Heitzmann for microscopical examination. He pronounced it to be a small round-celled sarcoma, and said that the patient would probably not live a year. I informed the patient and her husband, and told them that nothing would save her but entire extirpation of the uterus. They were both extremely anxious that the operation should be performed. I delayed from time to time, because I felt extreme hesitation in attacking a disease so threatening and so far advanced, lest the patient might not eventually be benefited. Finally, September 5th, 1887, she was admitted into the Hospital for Women at 501 Madison street.

From further investigation I had reason to believe that the disease had not only extended to the fundus, but had invaded the surrounding structures. I requested Drs. H. J. Boldt and A. P. Dudley, of New York, to see the patient. After careful examination they were both of the opinion that "the disease had extended beyond the uterus," but still thought it "a suitable case for operation." Subsequently I found even more serious symptoms, and, fearing the worst results, said to the husband and wife that even entire extirpation of the uterus might not cure, and that the patient had better be removed from the hospital and have nothing more done. I insisted upon this more especially on account of her emaciated and exhausted condition, which gave little hope of final recovery. Both husband and wife seemed to become more and more anxious for the operation, and urged persistently that it be performed; she especially pleaded that it might be done—"even if there was but one chance in a hundred, she wanted that chance."

If the operation would give the woman a chance of life, why should I not

make the effort? The womb was fairly movable; possibly she might be saved. On the 8th, as exploratory and preparatory for the operation, I scraped and curetted away as much as possible of the malignant growth, which seemed to have honeycombed the whole anterior part of the cervix and extended into the fundus. A considerable amount was curetted out, the cervix and vagina were disinfected and tamponed with iodoform gauze.

The patient did not stand this operation very well. She was evidently failing very rapidly and there was no time to lose. On the 13th I had the patient etherized and performed for her vaginal hysterectomy. The uterus was pulled down with volsella forceps, the extent of the bladder carefully noted, and near it an incision was made anteriorly in the mucous membrane covering the cervix, and as far as possible from the seat of the ulceration. I then separated the bladder and vaginal tissues, keeping close to the uterus to avoid any injury to the bladder. I opened into the peritoneal cavity anteriorly. Enlarging this opening, I passed the index finger of my left hand to the fundus of the uterus and out on the left broad ligament, which I secured, at the top part by ligatures and the lower portion by forceps, then separated, removing a considerable part of the broad ligament, so as to get clear of any possibly infected tissue. The fundus was next partially delivered anteriorly, the right broad ligament secured in the same manner, at the top with ligatures and the lower portion by long-bladed forceps. I also removed from each side a considerable portion of the broad ligament and as much as possible of the parametric cellular tissue. The blood vessels of the pampiniform plexus were numerous and enormously enlarged.

The uterus was now completely delivered, held only by posterior connections which were readily separated, and hemorrhage was prevented by pressure forceps. The operation was finished in an unexpectedly short period. The sponges which had been previously introduced to keep the intestines back, and which served to protect the peritoneal cavity, were now removed, and thereby the cavity was still further cleansed, and any hemorrhage guarded against by putting on more pressure forceps and then packing with iodoform gauze. No attempt was made to sew up the vaginal wound. I made the end of a strip of gauze enter a little into the peritoneal cavity to secure more perfect drainage. The seat of the operation, with the hanging forceps, was fully surrounded and protected by an abundance of absorbent cotton, and the patient placed in bed. She came out of ether feeling quite comfortable—so comfortable that she asked me during the evening if I had really removed the uterus or had performed any operation. When I assured her the operation had been performed and the uterus was removed, she was satisfied, happy, and very cheerful. The same evening she micturated and had a natural evacuation from the bowels. The dressings were changed and the patient slept comfortably the whole night. During the second day she took nourishment, had a good appetite, asked for grapes, and repeatedly expressed satisfaction that the operation had been performed. Her pulse was 108, temperature $99\frac{3}{4}^{\circ}$. The third day she ate chicken, and, when about to be removed to another bed, asked if she could not walk, said she felt all right. She gained strength rapidly, looked well, and left the hospital in a little over two weeks after the operation.

October 5th patient reported that she was doing well. November 5th, 1887, the dispensary record book says: Mrs. E. looks better and is still improving; says she "feels strong, able to do her work, and has not felt so well for ten years." She wrote April 21st, 1888: "Three weeks after leaving the hospital

I resumed my avocation of washing and ironing, and now I feel I am a new-born creature." December 13th, 1889, she wrote: "I now feel first-rate, my appetite is good, and I am growing stronger from day to day; I cannot feel too thankful that I am restored to health and brought back to my family and children."

April, 1890: Mrs. E. visited the dispensary; looks remarkably well, and supports herself and family by washing and scrubbing. July 20th, 1891: Mrs. E. attends to her daily duties as janitress of a large bank building. September 8th, 1892: Still has no return of the disease.

CASE III.—Mrs. H. came to Throop Avenue Dispensary July 22d, 1887; 49 years old; married twenty-five years; had four children, the youngest child 19 years of age; says she has been sick since the birth of this child, but has suffered more especially within the last five years, and lately has had darting and shooting pains in the pelvis, a constant burning and distress, with a bearing down and an offensive watery discharge; said she would rather die than endure the torment, and that she was not able to do her work nor to care for her husband and family.

On examination the whole cervix was found to be in a condition of ulceration, which a microscopical examination proved to be carcinomatous. Vaginal hysterectomy was performed at the Woman's Hospital, October 28th, 1887. Peculiar difficulties attended this operation on account of an intermural myoma in the posterior wall of the fundus, and an extreme retroversion. The uterus was first placed in normal position and delivered anteriorly as in the previous case. An incision was made in the anterior part of the mucous membrane of the cervix as far from the ulcerating surface as possible, the extent of the bladder noted and its attachments with the vaginal tissue carefully separated from the cervix, and the peritoneal cavity opened anteriorly, the uterus brought out, and the left broad ligament secured at the upper portion with ligatures, the lower part clamped with forceps and separated; the uterus could thus be still further delivered. And in the same manner the right broad ligament was tied and clamped.

Every day the wound was redressed, the old dressings removed and new ones put on. The patient did remarkably well. In two weeks she was able to sit up, and left the hospital on the 19th of November. On the 22d she came to my office; looked well. In December again reported herself as getting along excellently, and repeatedly expressed her thanks for what had been done for her in the hospital, as well as for the kind care and attention she had there received. June, 1892, five years after the operation, there is no return of the disease; the patient looks remarkably well and is in excellent health.

CASE IV.—Mrs. N. This case was presented with rather urgent symptoms—ulceration, bleeding, and offensive discharge—yet it was then regarded only as a deep transverse laceration of the cervix. There were more emaciation, feebleness, and nervous depression than in either of the preceding cases.

The patient was 35 years old; married ten years; had four children, the youngest being 4 years of age. She entered the hospital September, 1887. Microscopical examination showed the disease to be a round-celled sarcoma, apparently limited to the cervix. I decided to do amputation, hoping thereby to get rid of all the disease. This operation was performed September 17th, 1887, with thorough antiseptic precautions. The disease soon reappeared; it proved to be extremely malignant, progressed rapidly. The only chance of saving the patient was by the immediate and entire extirpation of the organ.

The husband was fully informed of her condition; was anxious that the operation should be performed, and as soon as possible. In the meantime everything was being done to improve the patient locally, and to build up as much as possible her general health and strength. On the first day of October, 1887, I removed the uterus. The patient was so exceedingly feeble that at times it was difficult for the physician who administered the ether to perceive that she was breathing. The cervix was brought down with a double tenaculum; the position of the bladder was carefully noted, and was found to extend quite to the point of the ulceration. I curetted the cervix, thoroughly disinfected, packed with small bits of cotton wet in 1:5000 bichloride solution, then carefully dissected away the bladder and vaginal tissues, opening the peritoneal cavity anteriorly. The mucous membrane of the vagina and the peritoneum were stitched together, so as to protect the bladder, and the loop of the thread conveniently served to hold away the edge of the wound and the peritoneum. The fundus was next seized with Volkmann's forceps and brought out anteriorly. Sponges with strings attached were passed into the peritoneal cavity to protect and keep back the intestines. The broad ligament on the left side was ligated at the top, and the lower portion secured by forceps, then separated at some little distance from the uterus, and as much as possible of the perimetrial tissue was removed and the pedicle cauterized. The right broad ligament was treated in the same manner, after which the posterior attachments of the uterus were readily separated and the organ delivered. The mucous and peritoneal membranes were held together by pressure forceps, the sponges removed, the parts cleansed, and the vagina packed with iodoform gauze. The operation lasted about thirty-three minutes, though the immediate work of opening the peritoneal cavity and removing the uterus was done in less than thirteen minutes. When the operation was completed the patient seemed more comfortable than before it commenced, and she was very much better and stronger than after the preceding operation. She was placed in bed with bottles of hot water around her, and was apparently doing well, except the pulse was extremely feeble and very rapid.

The next morning the patient's pulse was still extremely feeble and very rapid, but there was no increase of temperature. I put on new dressings; patient began to grow better, passed urine normally, and had a natural evacuation of her bowels.

October 4th she was moved into another ward; October 20th was able to be out of bed; October 24th was up all day, helping to look after another patient; and October 28th was removed to the children's department of the hospital for convalescence.

It will be noted that the patient recovered more rapidly and was stronger after the hysterectomy than after the cervix operation. October 30th she came to my office complaining of pains through the bladder, visited me frequently, and, because of so much suffering in her bladder, I feared there would soon be a reappearance of the disease. Temporarily I administered tonics. In this case the disease seemed so malignant that I presumed there would be a recurrence. I could only hope the operation would prolong her life for a few months. The patient was now lost sight of. I heard nothing from her and concluded that there had been a reappearance of the disease and that she was probably not living. Still, in June, 1891, I determined to find her, if possible, or learn her subsequent history. Finally I ascertained her residence, and walked in as she and her little family were sitting down to their Sunday midday meal.

She was the picture of health, blooming and apparently ten years younger than when I had last seen her. She and her husband both expressed great gratification that she had had the operation and that her life was saved. August, 1892, nearly five years after the operation, the patient is still in good health.

CASE V.—Mrs. L. E. called at Throop Avenue Dispensary October 21st, 1887; feeble, pale, emaciated, cadaverous, and had the appearance of one in the last stages of consumption; seemed hardly able to walk. She was 34 years old; married eleven years; had five children, youngest 2 years old. She complained of pain in the back and shooting and darting pains in the lower part of the pelvis, and had a constant watery discharge streaked with blood and very offensive. She had no appetite, was sick and not able to do any kind of work or to care for her family.

Examination showed ulceration at the seat of an old and extensive laceration of the cervix. The whole surface was bathed in pus and blood. October 23d she called again at the dispensary, complaining of the same prostration and feebleness, and watery, profuse discharges. Again she asked to go to the hospital. She was admitted on the 26th of October, still very feeble. Antiseptic douches were used and the womb treated every day, yet the offensive watery discharge continued. As soon as she could gain a little strength the cervix and vagina were thoroughly cleansed by brush, soap and water, and afterward by bichloride solution. The uterus was douched internally by an antiseptic solution; it was then curetted, and an effort was made to restore the deep transverse laceration. All the diseased tissue, so far as I could judge at the time, was removed, and the cervix closed with four stitches on each side. The patient continued extremely feeble; no special rise in temperature or pulse, still for days after she looked like one nearly dead, scarcely able to lift her head from the pillow. Antiseptic douches were given every day, yet at the end of a week the whole field of operation was a mass of suppuration; every stitch had ulcerated out. Microscopical examination proved the disease to be carcinoma. It was apparently extending to the fundus, and I feared had even involved other structures. I informed the husband of the nature of the disease; that nothing would save her but entire extirpation of the uterus, and even that gave but a chance of saving her life. The husband expressed in writing his wish for the operation, and, as soon as the patient was able, arrangements were made for its performance. On the 28th of November she was again lifted from her bed, again carried in the nurse's arms to the operating table, and hysterectomy was performed with the greatest celerity. First the ulcerating tissue was curetted and the cervix packed with bits of cotton. Next the extent of the bladder was carefully noted, and an incision was made through the vaginal membrane and as far from the ulceration as possible; the bladder and vaginal tissue were separated, keeping close to the uterus, and the peritoneal cavity was opened into anteriorly, clamping the broad ligaments, and so removing the whole uterus in less than fifteen minutes.

But for this special procedure, which not only gives more expedition but causes less shock, I do not believe the patient could have survived the operation. After it was over she was extremely feeble and exhausted. She was carefully removed to the bed, well covered, and bottles of hot water were placed around her. The pulse was still very rapid. When the wound was redressed she seemed more comfortable, passed urine normally, and at once began to show more strength and better condition; had some appetite, and improved beyond all expectation. Referring to this case in the *New York Medical Journal*,

September 1st, 1888, I said: "The patient was able to be up in two and a half weeks after the operation, stronger than she had been for months; left the hospital December 23d, and since has been able to resume the charge of her large family." February, 1888, dispensary record: "Mrs. E. looks well, is stronger, and still improving."

After this I did not see this patient or hear from her till April 28th, 1890. At this time she looked remarkably well, better than one could have supposed possible. Besides the care of her family she attended to her small grocery store. When she lay in the hospital before the operation she was like one almost dead, pale, wan, and feeble, the sickly discharge apparently draining her life away; now her eyes were bright, the sunken, hollow cheeks were filled out, and the color came and went. My work for her in the hospital, then apparently without hope, had resulted in good, because the operation was fortunately done before the rapidly growing disease had infected the neighboring vital structures. The delay of a few months or weeks might have been fatal.

These few cases prove beyond doubt that by a timely operation malignant disease may be eradicated from the system. Certainly years were added to the life of each of these women; to each one much suffering was saved and a sure death averted. Dr. G. F. Shrady, in his article on the "Curability of Cancer by Operation," says: "Cancer is essentially a local disease. It begins as an isolated growth in a particular tissue, and progresses by proliferating into neighboring parts, and can be cured by an operation."¹ This is a most important fact, and upon it rests the whole justifiability of the operation of colpo-hysterectomy. This fact, at the same time, makes it the duty of a surgeon to remove, when possible, a malignant growth in whatever part of the body found and as soon as discovered. Virchow says: "If cancer in its beginning, and often very long afterward, is a local disease, it must be possible during this period locally to cure it."²

Billroth, De Morgan, and others sustain the same idea. Erichsen³ says: "It cannot be doubted that in some cases a cancerous tumor may be removed with every expectation of the patient being completely freed from the disease." Macewen⁴ says: "The opinion that it is a constitutional disease is productive of the most dire results," adding: "I ask all who agree with me that carcinoma is, at an early period, both a local and a curable disease, to do everything in their power to convince others to that effect, and to try and prevail on all those

¹ Medical Record, January 22d, 1887.

² Virchow's Archiv.

³ Erichsen's "Science and Art of Surgery," p. 1002, vol. i., eighth edition.

⁴ Glasgow Medical Journal, 1886, pp. 287, 291.

who suffer from this affection to submit themselves to an operation at the very earliest moment." Butlin¹ says: "I have no doubt of the power of surgery to cure a certain number of cancerous patients. There need be no hesitation in claiming that all persons who remain well and free from cancerous disease for three years after the operation have been cured of the disease."

Dr. John Williams² considered a case cured if two years have relapsed without recurrence. John Marshall,³ F.R.S., of London, says: "I could point to persons living, and now perfectly well, eight, nine, ten, eleven, and twelve years since operation." Mr. Edgerton Jenkins⁴ said he had notes of cases of cancer in which, after a lapse of five years, in one case thirteen, there had been no return of the disease. Velpeau states that he has perfectly cured patients by the removal of cancerous tumors—at least that no return has taken place for twelve, fifteen, or twenty years after extirpation.

In 1846 Brodie stated that fourteen years previously he removed a breast affected with scirrhus tumor, and the lady was still in good health; and one patient, on whom he performed the operation thirteen years before, continued free from the disease. Ferguson⁵ says: "As excision gives the only chance of security, an operation should always be resorted to, provided the knife can be carried beyond the supposed limits of the disease; and, moreover, I deem it one of the duties of the practitioner to urge the patient to submit to such a proceeding."

Dr. G. F. Shrady,⁶ in the above-mentioned article, says further: "Statistics might be multiplied to prove the chances of radical cure in cases which have been treated by the knife, and of the certainty of prolonging life by excision of cancerous growths. One case was alive and well nineteen years after an operation, another dying of apoplexy eleven years and three months after; one, operated on by Dr. Frank H. Hamilton, survived twenty years, another was living ten years after the extir-

¹ "Operative Surgery for Malignant Disease." By H. C. Butlin, Professor of Pathology in the Royal College of Surgeons, London.

² "Harveian Lectures on Cancer of the Uterus."

³ "Morton Lectures on Cancerous Diseases," British Medical Journal, November 23d, 1889, p. 1145.

⁴ British Medical Journal.

⁵ Erichsen's "Science and Art of Surgery," p. 1003, vol. i.

⁶ Medical Record, January 7th, 1887.

pation of a cancerous breast; one by Dr. C. Deadrick, of Knoxville, Tenn., survived eight years, and died of another disease."

July 10th, 1877, I removed a scirrhus cancer the size of a lemon from the breast of a woman 39 years of age. Ether was administered by Dr. Lewis Pilcher. At one stage of the operation he suggested that the whole breast be amputated, which indeed was excellent advice; but I was anxious to save the organ, as I had promised the patient to do so if possible. I felt certain that I was cutting into healthy tissue, and that all the malignant disease would be removed. With the tumor I took away a considerable portion of the surrounding structure. This was the safety of the patient. She made a rapid recovery, and when last heard from, nearly twenty years after the operation, was still well and had no recurrence.

I did an operation for removing a similar malignant growth, and of about the same size, from the breast of a woman a few years younger. Ether was administered by Dr. Charles Corey. Now nearly twenty years have elapsed, and there is yet no return of the disease. Another patient, Mrs. T., stronger and more vigorous than either of the two preceding, had in her breast a smaller and apparently less malignant tumor, causing no trouble in any way, and she, thinking it quite innocent, gave it no attention. Finally she was brought to me by a friend of hers. This was in 1888. The little, movable, cherry-sized ball had become fixed, ulceration had commenced, and her whole system was more or less infected. I could only tell the patient that by the removal of the growth, and as much as possible of the surrounding tissue, the progress of the disease might be stayed, which, advancing as rapidly as it now seemed to be, would inevitably in a short time prove fatal. I removed the whole mammary gland and all the glands in the axilla, making the operation most thorough. In about a year the disease reappeared; I again removed the growth, with a liberal amount of the adjoining tissue and all of the newly enlarged glands—cleaned out the whole axillary space. The cancer soon reappeared, and when I, at her request, was preparing for a third operation, the patient was persuaded by some one to go to the Seney Hospital. There the operation was performed by Dr. Lewis Pilcher, and, as I understood, though he removed the rapidly appearing growth at short intervals, still at the end of a few months the patient died in great suffering.

If in this instance the tumor, when it was a little movable ball, had been removed with the tissue in immediate proximity, the patient would probably have had no further trouble, and even the fact of its malignancy might have been questioned. It was then a local disease, had in no way infected the system, and could at that time, I believe, have been entirely eradicated. At that period, too, the operation would have been exceedingly simple; and, according to the teachings of Butlin, who has had vast experience in St. Bartholomew's Hospital, London, there would then have been no necessity to have removed the whole mammary gland, any more than, in an advanced stage of disease of one breast, to remove both. Soon after the inflammatory infiltration commenced, and the cancer epithelia were being carried by the lymphatics to distant parts of the body, and it was no longer a local disease.

Does not vaginal hysterectomy prove that cancer is curable?

Though a comparatively recent operation, and though it has often been performed under the most inauspicious circumstances, yet there are many instances reported where, by this operation, malignant disease has been wholly removed and the individual apparently restored to health. Langenbeck's historical case—one of the first vaginal hysterectomies performed—lived free from the disease for twenty-six years after. Thomas Keith¹ removed a uterus in 1881, and nine years after the operation there was no return of the disease and the patient was in good health.

N. L. Brewis² says: "In May, 1884, Dr. McDonald removed a large, sloughing, cauliflower excrescence from a patient aged 36, and to this day she remains well and free from return." Olshausen tells of two that had no return at the end of eight years, and one at the end of nine years. In his statistics of "five hundred and twelve cases of carcinoma in 1885 in Berlin," he states that "one hundred and sixty-three underwent the radical operation; nearly half were free from relapse two years after." This, in most cases, means a cure. Schauta showed that forty-seven per cent of his cases had no return at the end of two years. Tannen³ reported the statistics of the Breslau

¹ British Medical Journal, January 10th, 1891, p. 58.

² Edinburgh Medical Journal, 1891, vol. ii., p. 1002.

³ Archiv für Gynäkologie, Bd. xxxv., Heft 3. Quoted by H. C. Coe in American Journal of the Medical Sciences.

clinic from June, 1883, to November, 1889: "One hundred and three cases of vaginal hysterectomy—47.4 per cent of the patients were free from the recurrence at the end of three years; several reported as well six years after the operation."

John Williams¹ says, in speaking of his statistics, that twenty-eight per cent of all operations are cured. Of thirty-one of Leopold's cases at Dresden, no fewer than seventeen, or fifty four per cent, presented no signs of recurrence at the end of three years. Leopold, Schröder, Fritsch, and Martin: Out of two hundred and fourteen, at the end of one year thirty-five were living; at the end of two years, twenty-five; and at the end of three, twenty. Thus twenty at least were cured permanently who without the operation were doomed to certain death.

Billroth, Esmarch, Fischer, Volkmann: Out of six hundred and forty-three cases, sixty-five were well at the end of two years. Martin² says, in his late work, out of sixty-six, eleven died under the influence of the operation, thirty-one have remained free from recurrence of the disease; this gives, therefore, as a result, seventy per cent of cures. Pozzi believes forty or fifty per cent are cured.

Prof. Lane,³ of San Francisco, who was the first to perform the operation of vaginal hysterectomy in the United States (November, 1878), said, September, 1888: "I have operated fourteen times, with one death in forty-eight hours; all the rest are yet living and evidently cured."

Fritsch⁴ reports sixty cases from his clinic at Breslau, and says: "Nine were well at the end of two years, while the remainder were without a return after the first six months," which he considers the most dangerous period. Terrier⁵ tells of two who survived for three years, one for nearly five years, one over six. The following shows statistics of the number who were well at the end of two years: "Billroth, one hundred and forty-five cases—twenty-eight, or 5.5 per cent. Esmarch, two hundred and twenty-five cases—ten, or 11.5 per cent. Fischer,

¹ Transactions of the London Obstetrical Society, 1890.

² "Pathology and Therapeutics of the Diseases of Women." By A. Martin. Translated by Ernest W. Cushing. Second edition, p. 310.

³ Gynecological Transactions, 1888, p. 207.

⁴ Centralblatt für Chirurgie, June 18th, 1887.

⁵ Revue Médico-Chirurgicale des Mals des Femmes, December, 1891.

one hundred and forty-seven cases—twenty, or 8.3 per cent. Volkmann, one hundred and thirty-one cases—seven, or sixteen per cent. Küster, one hundred and thirty-two cases—fourteen, or sixteen per cent; and Martin,¹ sixty-six cases—nine, or sixty per cent.” Thus by timely operation eighty-eight were saved of those who were otherwise certainly doomed.

The conclusion thus forces itself upon us that by a timely operation *one may be cured of this most painful and perilous disease*, as F. H. Martin,² of Chicago, says: “It seems to me that vaginal hysterectomy is the means of the saving of many women from one of the most horrible deaths of which it is possible to conceive.”

Early Mortality.—At first, even with the best operators, there was a large mortality as the immediate result of the operation. It was the most helpless cases that came. There could be no selection. The difficulties were great. It was going into unseen dangers to save hopelessly shipwrecked sufferers. The grave alternative was: Save, or more heavily weight them that they sink even more rapidly! The responsibility was tremendous. Brave, noble, and heroic were these surgeons who thus endeavored to rescue the lost and perishing. It was a marvel that any were saved.

The immediate results of the operation are seen in the following statistics: ³

In 1881 Olshausen collected 41 cases with 29 per cent mortality.						
In 1883 Säger	“	153	“	“	28	“
In 1884 Engström	“	157	“	“	29	“
In 1886 Hegar	“	257	“	“	23	“

Immediate mortality up to the end of 1886: Fritsch, 60 cases, 7 deaths; Leopold, 42 cases, 4 deaths; Olshausen, 47 cases, 12 deaths; Schröder, 74 cases, 12 deaths; Staude, 22 cases, 1 death; Martin,⁴ 66 cases, 11 deaths; and Brennecke, 13 cases and no deaths.

Dr. Wm. Duncan⁵ reported to the London Obstetrical Society, January 14th, 1885, two cases of total extirpation of the uterus, one death. He presented all the statistics he could find recorded up to that date, giving 276 in number, 79 deaths—a total mortality of 28.6 per cent.

¹ Annals of Gynecology.

² Journal of American Medical Association, 1890, p. 575.

³ Annals of Gynecology.

⁴ Ibid.

⁵ Transactions of London Obstetrical Society, January, 1885.

RESULTS OF INDIVIDUAL OPERATORS—STATISTICS OF W. DUNCAN.

	No. of Operations.	Deaths.		No. of Operations.	Deaths.
Ahlfeld	2	1	Freund	2	1
G. Bantock	1	1	Hahn	7	2
Bardenheuer ..	1	1	Helferich	1	..
Baum	4	2	Malins	1	1
Bernay	1	..	Netzel	1	1
Billroth	12	4	Ogston	2	1
Bockel	1	..	Olshausen	25	7
Bolling	1	..	Sänger	2	1
Bompiani	1	1	Schatz	10	3
Bottini	3	..	Schede	2	2
Brunner	10	3	Schröder	27	8
Calderini	1	1	Simpson, A. R. ..	1	1
Caselli	1	1	Tauffer	5	1
Czerny	11	3	Teuffel	7	3
Demons	4	2	Thiersch	6	1
Duden	2	1	Thornton	1	1
Edis, A. W.	1	1	Williams, John ..	3	2
Engström, O. ..	2	1	Zweifel	3	1
Esmarch	2	1			

Dr. Sarah Post¹ collected over 700 performed before the end of 1887, with the total death rate of 24 per cent. At a meeting of the Surgical Society of Paris, Terrier² reported 34 operations with an immediate mortality of 25 per cent.

Maurice Hache³ gives 495 operations in which the mortality was 24.29 per cent :

Before 1883....	164 hysterectomies for cancer.....	43 deaths..	26.21%
In 1883.....	79 hysterectomies for cancer.....	18 deaths..	22.28%
In 1884.....	107 hysterectomies for cancer.....	27 deaths..	25.23%
In 1885.....	69 hysterectomies for cancer.....	14 deaths..	20.28%
	4 hysterectomies for other causes.....	1 death..	
In 1886.....	59 hysterectomies for other causes.....	15 deaths..	25.42%
	7 hysterectomies for other causes.....	1 death..	

THE FOLLOWING STATISTICS OF INDIVIDUAL OPERATORS.

	Deaths.	Cases.		Deaths.	Cases.
Baum	2	5	Müller .....	..	4
Billroth	4	12	Bottini .....	..	5
Teuffel	3	5	Staudé .....	..	17
Czerny	3	8	Martin	18	85
Hahn	1	5	Fritsch	2	23
Thiersch	1	4	Péan	3	5
Schatz	3	10	Brennecke .....	..	21
Schröder	9	34	Novaro	10	20
Tauffer	1	5	Buttlehner	1	9
Olshausen	7	32	Terrier	2	10
Demons	2	5	Bonilly	3	11
Duvelius	1	8	Trélat	1	4

Total, 81 deaths in 358 operations, or 22.62%.

¹ "Colpo-hysterectomy for Cancer," American Journal of Medical Sciences, January, 1886.

² Revue Médico-chirurgicale des Mals des Femmes, December, 1891.

³ Revue des Sciences de Méd., Paris, xxix., pp. 721-739.

Dr. A. P. Dudley gives in his tables the following statistics of individual operators and the results : ¹

Operator.	Operations.	Date.	Result.
Dr. Anderson, San Francisco.	1	Oct., 1881 ..	Recovery with a vesical fistula.
Dr. W. H. Baker, Boston..	1	March, 1885.	Recovery.
Dr. A. C. Bernays, St. Louis	6	1883 to 1885.	Recovery.
Dr. J. C. Blake, Boston ..	1	Jan., 1885...	One death in twelve hours from shock.
Dr. W. T. Bull, New York.	5	1883 to 1886	One death.
Dr. Burke, Connecticut ..	1	Nov., 1882	Recovery rapid.
Dr. Cushing, San Francisco	1	Sept. 4, 1881	Recovery rapid.
Dr. B. F. Dawson, N. Y.	1	April, 1885..	Death on third day from fever.
Dr. D. Vecchi, San Francisco.	2	March, 1883.	Recovery.
Dr. A. Palmer Dudley, New York.	2	Dec., 1883, to 1886.	One death thirty-nine hours from acute nephritis.
Dr. E. C. Dudley, Chicago.	1	May 23, 1882	Died in four hours from shock.
Dr. J. W. Elliot, Boston...	1	May, 1885 ..	Death on fifth day from hemorrhage.
Dr. P. F. Eve.....	1	Apr. 16, '80.	Recovery.
Dr. C. Fenger, Chicago....	1	Sept. 19, '81.	Recovery rapid.
Dr. M. Franklin, Philadelphia.	1	Nov. 11, '82.	Death on fifth day from shock.
Dr. Goodell, Philadelphia..	1	Nov. 11, '82.	Death caused by septicemia.
Dr. R. J. Hall, New York..	1	Aug., 1886 ..	Recovery.
Dr. J. B. Hunter, New York.	1	Oct. 24, 1885	Death same evening from shock.
Dr. E. J. Ill, Newark, N. J.	1	May 30, 1885	Recovery.
Dr. J. Taber Johnson, Washington.	1	June, 1885 ..	Death in four hours from peritonitis.
Dr. F. Lange, New York..	1	Nov. 11, '86.	Recovery rapid.
Dr. L. C. Lane, San Francisco.	9	1878-1886...	Three deaths.
Dr. W. H. May, Stockton, Cal.	1	Sept., 1882 ..	Death on fifth day.
Dr. Paul F. Mundé, N. Y..	3	1883 to 1885.	Two deaths. ²
Dr. Polk, New York.	6	July, 1884, to 1886... ..	Two deaths.
Dr. Reamy, Cincinnati....	2	1886.....	One death in forty-eight hours from shock.
Dr. W. E. Taylor, San Francisco.	2	Aug., 1881 ..	Recovery rapid
Dr. Thomas, New York....	1	Oct., 1882...	Died on seventh day from septicemia.
Dr. Von Ramdohr, N. Y....	1	July, 1886 ..	Recovery.
Dr. Von Hoffmann, San Francisco.	1	Aug., 1883, to 1884.	Recovery.
Dr. R. F. Weir, New York.	2	Nov., 1884, to 1885.	One death from shock and loss of blood.
Dr. Wile, Danbury, Conn...	1	Nov., 1883..	Died third day from shock.
Dr. C. M. Wilson, Philadelphia.	1	1886.....	Recovery.

¹ New York Medical Journal, "Vaginal Hysterectomy in America," July 9th, 1887.

² In the New York Medical Journal of July 30th, 1887, Dr. Mundé says: "I desire to add to this number two cases which I operated on February 2d and 23d, 1887, with recovery; also a third which has thus far progressed so favorably that I have no reason to doubt the patient will recover."

The following is from a table of J. F. Binnie, Kansas City :

	No. of Operations.	Deaths.		No. of Operations.	Deaths.
Baer.....	2	1	Kaltenbach ...	80	2
Bernays.....	22	2	Leopold.....	83	5
Bokelman.....	19	2	Munchmeyer ..	80	4
Brennecke....	21	0	Slawjanski....	80	9
Byford.....	20	1	Tannen.....	103	10
Carson.....	4	2	Gill Wylie... ..	20	1
Eastman.....	13	3			

Dr. John Scott¹ says: "In 1889 the immediate mortality in San Francisco was twenty to twenty-five per cent."

F. H. Martin, of Chicago, gives, January 31st, 1891, the following statistics of individual operators:

	No. of Operations.	Deaths.		No. of Operations.	Deaths.
Boldt.....	15	1	M. D. Mann....	4	1
Bull.....	6	1	Pinkham, J. S..	4	0
Byford.....	20	1	Reamy ²	12	2
H. C. Coe.....	8	3	H. C. Coe, and		
E. C. Dudley...	6	1	Jas. B. Hunter ³	19	6
S. E. Gordon...	3	1	Bache Emmet..	4	1
R. B. Hall.....	1	1	Etheridge ⁴	4	1
J. Taber John-			E. W. Mont-		
son.....	5	3	gomery.....	3	1
E. E. Montgom-			W. M. Polk ⁵ ...	22	5
ery.....	5	1	Péan, 1886-1887	22	7
H. O. Marcy...	4	2	Edebohls ⁶	5	1
F. H. Martin...	5	0			

The above statistics show as the immediate results of the operation a mortality of over twenty per cent. But we find just as great mortality in the removal of malignant diseases from other parts of the body. Butlin⁷ gives the following statistics of operation on other parts of the body for cancer: "Sixty-five cases of complete extirpation of the larynx for

¹ Gynecological Transactions, 1884, p. 230.

² Journal of the American Medical Association, Chicago, 1891, vol. xvi. pp. 152.

³ AMERICAN JOURNAL OF OBSTETRICS, July, 1890.

⁴ Journal of the American Medical Association, December, 1887.

⁵ AMERICAN JOURNAL OF OBSTETRICS, 1891, p. 878.

⁶ AMERICAN JOURNAL OF OBSTETRICS, 1891, p. 881.

⁷ "Operative Surgery for Malignant Disease." By H. C. Butlin, Professor of Pathology in the Royal College of Surgeons.

carcinoma, with thirty deaths due to the operation, and only one patient alive and well more than two years after. Six cases of esophagectomy, with three deaths; of the three patients who survived the operation, two were known to have died of recurrence of the disease, and the third was lost sight of. Forty patients from whom malignant tumors of the kidney were removed, with twenty-eight deaths. Of the recoveries only one was permanent, the others having been followed speedily by the recurrence of the disease (Gross). One hundred and forty-eight cases of removal of the uterus through the abdominal incision, with one hundred and six deaths; and Gusserow says 'that all the patients whose histories have been followed up suffered from recurrence of the disease.' Fifty removals of cancerous thyroid, with thirty deaths; of those who recovered from the operation, only two survived more than a year. Fifty-five patients from whom cancer of the pylorus was recovered, of whom forty-one died from the operation, and not one is known to have made a permanent recovery.

"Here," says Butlin, "are the records of surgical operations on six parts of the body, the total number of cases three hundred and sixty-four, with one hundred and twenty-six recoveries, two hundred and thirty-eight deaths due to operation! And only two alive and well at the end of two years!" Still, Butlin wisely observes: "The two hundred and thirty-eight persons who perished of the operations were in any way doomed to death within a short period, and so large a mortality is more than justified by the cure of one hundred and twenty-six persons who would have died but for the operation."

Only by an operation could these be saved, and the object should be to save as many as possible. J. C. Cullingworth,¹ of St. Thomas' Hospital, London, says: "If every newly performed operation that shows at first a high death rate is to be at once denounced as unjustifiable, there is an end to surgical enterprise and surgical progress."

(To be continued.)

¹ Transactions of the London Obstetrical Society, 1890, vol. xxxii., p. 160.

KANGAWIANA.¹

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THE Japanese are in obstetrics the most successful people on earth. Nowhere do we find less mortality, or less failure of any kind, in childbirth. Yet the theories laid down in the text books of the Japanese are not as admirable as their practical success. Nowhere do we find such good work done in spite of such bad methods. Even before the time of the first Kangawa, who is considered as the great reformer of Japanese obstetrics, this success was notable; and it is even to be supposed that it was more complete still, for with Kangawa came the meddling interference of pseudo-physicians ignorant of anatomy and physiology.

In the absence of any scientific knowledge the Japanese have always had this advantage—that childbirth accomplished itself with an ease that we do not find anywhere else. They are favored in this by their anatomical structure. The Japanese women have no deformed pelves, and their abdomens have never suffered from the pressure of the corset. Moreover, thanks to the existence of the concubinate, the pregnant woman is relieved from uterine troubles due to sexual excesses. The gentle care taken of the pregnant woman cannot be conceived by any one who has not lived in Japan. As a consequence, miscarriages are much rarer than with us, and hence many accidents of childbirth due to previous miscarriage are also of rare occurrence.

Down to Kangawa's time the whole obstetrical business of the country was done by women whose knowledge had been transmitted by word of mouth from generation to generation, like the poems of Homer. Whatever science there is in Japanese obstetrics is laid claim to by the Kangawas. No credit whatever

¹ Communicated to the Sei-I-Kwai, or Society for the Advancement of Medical Science in Japan.

is given to the midwives of Japan and their system of compulsory isolation of the puerperæ, which for ages had prevented the infection of the lying-in chamber.

In a general way Kangawa rendered no service. On the contrary, his physicians, going from patient to patient, added the dangers of infection to those of childbirth. What he did was this: he taught a salutary interference in cases of extreme danger and impossible natural labor, where the midwife would have helplessly thrown up the sponge.

One fact will suffice to give an idea of the *passiveness* of Japanese obstetrics. They knew nothing of the functions or even the existence of the uterus. Their treatment consisted of internal medication, and such medicaments as can be of some use were unknown to them, even ergot.

The original Kangawa (Sigen) appeared in 1765, or rather his book, the "San-ron" (description of birth), appeared for him. He was a professor of acupuncture, and his whole doctrine is based upon it, and his knowledge and exploitation of such portions of the human body as are considered most important in regard to acupuncture, rather than on any anatomical knowledge or experience. Ten years later his adopted son, Gengo Kangawa, published the "San-ron Yoku," which is a collection of notes explanatory of his father's book. The Kangawa family, after these brilliant beginnings, did not allow the obstetrical sceptre to drop from their hands. We do not know whether the third Kangawa was also an adopted son of the second, and if the race was regularly continued by adoption, for which system the Japanese have a singular predilection. It seems to me, at any rate, that so much genius could hardly be transmitted through five natural generations.

The other representatives of the illustrious race are: (3) Mitzu-sada Kangawa, the inventor of the fish-bone loop; (4) Mitzu-taka Kangawa, who found the use of the cloth; (5), Mitzu-nori Kangawa, with whom the glory of the family will probably be extinguished, for European obstetrical science will be, according to all probability, the last adoptive child of the Kangawa.

I will now describe in a few pages the kind of wisdom which is contained in the first Kangawa's monumental work, the "San-ron."

It is divided into four parts: 1. Development of the embryo and treatment to be pursued during gestation. 2. Choice

of the lying-in chamber and position of the puerpera. 3. Post-partum treatment. 4. Position and bandaging after birth.

1. The first section offers nothing of any value regarding the development of the embryo. He shows simply the knowledge of symptoms which the midwives possessed before him, and which every woman who has borne a child is likely to possess. His examination of the three loci, the finger-tip pulse, the wrist pulse, and the crural pulse, for the determination of pregnancy, is sheer nonsense. So is his palpation of the abdomen to discover the presence of a spherical, smooth body of the size of a chestnut, for the same purpose. The absence of the menses as a sign of pregnancy can hardly be considered a discovery of Kangawa. What sense is there in his "wise provision of Nature" endowing the back of a pregnant woman with broadness and curve? Perhaps he deserves some credit for being the first (if he was it) to contradict that old doctrine according to which the child executes a somersault at the moment of birth. Close observation must needs lead to the knowledge of the regularity of a vertical position at birth, and of the irregularity of the breech position. The same may be said of the recession of the median line of the abdomen in geminal pregnancy. All that he says about twin and triplet births is true, excepting his assertion that when twins are situated with both their heads upward or downward they have one common placenta. We know that that is not so. As an example of the singular fancy to which the old obstetrician was a prey, I give the following Kangawism: If in the third month of gestation an abortion takes place, there is found, in spherical form, a lump of the size of a chestnut, which shows on its section five different colors—which proves that man is the embodied essence of the five elements: water, fire, metal, wood, and earth.

Kangawa's lack of anatomical knowledge is shown by his assertion that the flexing of the thigh of the mother pushes the thighs of the child upward, while from above the fetus is shoved downward by the stomachal band of the mother, and that this is the cause of the transverse position. Of course the uterus is entirely ignored. The same ignorance of the very existence of the uterus appears in Kangawa's opinion that up to the ninth month the position of the fetus is such that the child can support its neck against the upper limit of the os pubis. He adds that in the tenth month (Japanese calendar) the head assumes a

deeper position, being then placed behind the os pubis; if now the wall of the abdomen is palpated, and it is found that the hand can no longer penetrate between the os pubis and the ball (gravid uterus), the birth is to be looked for within ten days. The fetus then moves daily, and mensually descends by degrees until at last it issues forth. Of course these fetuses peeping out from behind the os pubis are a singular conceit, and remind one of the smart little cherubs so comfortably established for contemplation in the Dresden Madonna.

Addressing himself to the anomalous transverse position, Kangawa delivers himself of a most extraordinary piece of hocus-pocus. He speaks of the fetus straying about in the body, perplexed by the problem of choosing between the hardship of a position which brings him in contact with excremental lumps, and another which exposes him to maternal intestinal winds: he hits upon a medium—hence the transverse position.

His rules for the reposition of the fetus bring the physician in strange and perfectly useless contact with the person of his patient: there is kneading of the breast, putting his knees (bare, as Japanese knees are) against the left side of the woman, putting her arm around his neck, squeezing of her knees between his, rubbing her nates and hips; the latter must be done sixty or seventy times, and accompanied with a peculiar clapping noise requiring a special study. After that, says he contentedly, the woman is quite comfortable. This operation, to keep the mother and child in good health, must be repeated every morning from the fifth to the sixth month. This energetic manipulation, according to Kangawa, will suppress in due time "the melancholy fact of embryonal decay, and unbounded happiness will await the progeny." In Japanese, at least the Japanese of Kangawa, "unbounded happiness" means evidently the advantage of being born with all one's limbs straight. Kangawa flatters himself, in his famous "San-ron," that he has made a special step ahead in obstetrics: what I have just described is the step.

In his second section, referring to the "choice of a bed," he discusses the anatomical position of the fetus, as he conceives it, and asserts that male and female fetuses have the same position in the womb, face backward—which is very true and obvious. But he adds that when the child is born and reaches the mat of the floor (where Japanese women are always confined) the

male lays himself on the abdomen, the female on the back. This, of course, is another form of the popular superstition according to which male corpses in the water float on their bellies, female corpses on their backs. Kangawa could not help knowing that this assertion was contrary to the facts; but the old charlatan was not superior to the temptation of doing something to strike and please the phantasy of his public—*his nam plebecula gaudet*.

His description of natural birth is quite lengthy and very accurate; only his anatomy is at fault again when he says that the symphysis pubis opens at the moment of the passage of the head. When the uniting bone does not open, says he, it is a bad case. Did I not say in the beginning that Japanese obstetrics was the most felicitous on earth? Here we have, at least in Kangawa's mind, symphysiotomy performing itself spontaneously without any help of Galbiati's knife.

The manipulations of Kangawa are five in number. The first regards the *crouching of the puerpera on the mat*. The girdle is removed and she sits with her heels on both sides of her body. The physician makes her bend forward, put her arms around his neck, and support herself on his shoulder. He then wraps his right hand in a towel, and reaches between both thighs of the woman and supports the anus with his hand; his left arm encircles her body. With each throe he elevates the body of the woman with his left arm. Kangawa here gives minute directions, and judicious ones, as to the way to determine by index and middle fingers the position of the child. He shows how the labor may be induced by rupturing the bag of waters with the finger nail. The perineum, he says, must not be torn, but supported with the right hand, which, he adds, is the most important point of that stage which is called "sitting on the mat."

The second manipulation is called *delivery of inverse position*. If a foot or heel presents itself it must at once be pushed back. The woman is made to lie on her back upon a bed made high with pillows; her thighs are widely separated. It must be determined whether the foot in question is the right or left one; this is determined by the position of the big toe. The other foot is then sought for, and both are brought down and delivered with strong traction by the physician, who uses his knees as a point of support. Kangawa here says that should the foot not be pushed back, or should the delivery have advanced

so far that it cannot be pushed back on the arrival of the physician, the one foot by itself must be delivered, the child's body following, the other leg flexed upon it. If this method is not used in good time, mother and child are lost, and, Kangawa adds sententiously, vain regrets will be left to the survivors.

Should the child be already dead and its neck be impeded by the uniting bone so that the after-coming head cannot be delivered, the woman, according to Kangawa, must be made to lie on her stomach and to keep her thighs apart. Then the child is wrapped in a cloth and seized tightly with the left hand. Beat the neck with the thumb of the right hand at regular intervals on the front or back side ; rise and pull out the child. All that is not bad and might be imitated, except, of course, the beating.

Kangawa's delivery of a breech case is also good, if seen early enough. Press the child backward, then by kneading the abdomen make it stretch its legs, and pull it out. Should it be dead the deliverance is made with an instrument.

In all these operations, excepting the delivery of the chin hooked upon the symphysis pubis, the child must be pulled out forward and upward around the pubic arch, and not straight downward. The raising of the operator's own body is here of importance. It must not be forgotten that the Japanese physician, standing over his patient, who, in difficult delivery, is lying supine on the floor, has a considerable advantage over our own physicians.

The third manipulation is the *correction of a transverse position*. The physician, having, by feeling the fingers or arm or elbow in the uterus, ascertained the transverse position, presses the presenting part backward, then seizes the fetus through the abdominal wall with his right hand and bimanually arranges a straight position for the fetus. This clever management certainly does great credit to Kangawa.

The fourth manipulation concerns the management of twin births. All twin births, except when both are in inverse position, can be brought to a happy termination. His rule is, when both heads are lying forward, to deliver the foremost first, to push the other upward, and, after the first child is delivered, to bring down the second head. He delivers his woman, placing her upon that side in which the posterior child's head lies, which allows the first child to slide on an inclined plane. This is worthy of scientific medicine, and we might with ad-

vantage take the hint from the old Japanese master. Inverse twin births are treated like single inverse births. Kangawa says that if both heads lie downward, both children being dead, and if both heads together move toward both thighs of the mother, it is uphill work to bring the heads into a regular position; yet it is necessary to act exactly as if the children were living.

The fifth manipulation is called the *life-restoring method*. This is not, as the reader might be led to expect, anything like the raising of Lazarus from the dead. In fact, strange as it may appear, it is impossible to say what it is. At any rate, Kangawa refuses to describe it, under the flimsy pretext that it is too difficult to describe, and that therefore it must be transmitted simply by oral tradition from master to pupil. It is fated to be and to remain a professional mystery. There is no doubt that Kangawa's reluctance to revealing this part of his business was caused by the awful character which the instruments employed—two hooks, one blunt, the other sharp, destined to seize the child—gave to the operation. This operation, of course, remained a mystery, as the doctor and his patient were screened from each other's view doing the whole performance by a suspended blanket. The hook is known now to all midwives; but this fifth operation has, as the old quack desired, remained a secret.

The third section refers especially to confinement—its bearing on prescriptions for cutting and ligating the umbilical cord, and the delivery of the after-birth. The danger from a retention of the placenta is pointed out. Various conditions, such as giddiness, following parturition, are considered. White plums and black beans are not to be eaten during confinement, according to the superstitious fear which the Japanese feel for the meeting and contrast of these two opposite colors. If the milk does not flow at once after birth, the mother is to wait thirty days; what she is to do after that does not appear. The only bathing of the genitals allowed to lying-in women, after birth, is the natural bath furnished by the flow of the uterine discharges, until fourteen or fifteen days have elapsed. Kangawa strongly condemns the warm salt baths taken the sixth day after delivery, according to the old popular custom. After eight days he wipes impurities from the genitals with a piece of linen dipped in water. The body up to this time has been

strictly protected by the clothing against agitated air which might be fraught with impurities.

The author in this chapter discusses also the other complications connected with confinement—puerperal phthisis, pains of various kinds, paralysis of the lower extremities (from enforced sitting in that remarkable institution of the Japanese, the puerperal stool), convulsions, violent diarrheas, costiveness, retention of urine, laceration of the perineum (for the mending of which he advises crooked position of the legs), mania, precordial anxiety, dropsy, nocturnal sweating, cramps of the eye muscles, apoplexy, and fever. For the delivery of a retained placenta Kangawa declares—moved thereto by that genius of quackery which was certainly very strong in him—that the method is so difficult that he will not try to describe it, either orally or in writing. His grief at this inability is the greater that fifty per cent of the women with retained placenta die. But he will try to teach it to his disciples directly, and exhorts them not to let the method fall into oblivion.

Post-partum hemorrhage, says Kangawa, may take place immediately after the delivery of the placenta, or forty or fifty days later—even a year later, he adds with Japanese exhaustiveness. The blood breaks out with the rush of diarrhea, and, if not stopped, he affirms that the effusion will be fatal. The physician takes his position at the right side of the patient, causes her to stretch her legs, presses together with his right leg the lower part of the back and the thighs of the woman, stops closely the vulva, and remains motionless in this position, without letting go. Meanwhile a strong decoction of ginseng is prepared. After this has been taken the woman is made to lie on her right side with elevated head. Thus she may be saved.

In order to impress his pupil with the urgency of the crisis, Kangawa tells him that should the call come while he is at table, his duty will be to throw away forthwith the eating sticks and run to his patient. This gives the author a new opportunity for considering the use of the stool, the boards of which, being locked about the body of the patient, interfere with the necessary manipulation.

Kangawa's remedy for the inversion of the uterus is in no way different from our own; only, in describing it he shows again his anatomical deficiencies, for he speaks of it as a reposition of the intestine. The woman is first placed in a dorsal

position, the physician kneeling over her, her arms about his neck and his left hand behind her; he gradually raises the woman to a semi-sitting posture, while he thrusts the mass back with the palm of his right hand. If the mass is dark in hue or gangrenous a hempen ligature is applied, whereby it will fall out in due time, without, he adds—perhaps too sanguinely—any harm being done.

His reposition of a prolapsus ani is thus performed: Let the woman stand against the wall or against a beam in such a way that the tip of her nose, her breast bone, and her toes touch the wall. If she cannot stand independently, let somebody support her. The physician presently steps behind her, kneads the nates with both hands, covers the prolapsus with his hand, and gradually pushes the rectum in—which will prove, he says, quite an easy performance.

In the fourth section of the monumental work the author gives his opinion of the puerperal stool: it is entirely condemnatory. When the book was written it was the general custom to have the lying-in woman sit in a peculiar chair, composed of five boards, one of which gave support to the back, two on the sides, the fourth in front, the fifth forming the bottom. These boards were movable in grooves, so that they could be changed. After the delivery of the placenta a straw mat or quilted blanket was put upon the chair, the woman was made to rise and to sit upon the stool. There she had to sit for a week. During all that time she was not permitted to sleep, and as soon as her head was seen to bend forward a watcher compelled her to raise it. Only after the seventh day was she relieved from that torture. All the puerperæ, even the empress, were fettered with those shackles; only the very lowest class, the fisherwomen and the wood-hewers in the mountains, enjoyed freedom. Kangawa found in the chair eight injurious characters:

1. The danger of syncope from getting up and walking to it.
2. The danger of hemorrhage from standing or sitting upright.
3. The impossibility of putting the woman in a supine position with the necessary quickness in case of bleeding.
4. The pressure of the stool producing paralysis of the lower extremities.
5. The lack of rest and the enforced vigil.
6. The fever induced by sleeplessness.

7. Inability to return a prolapsus, and fever resulting therefrom.

The eighth objection refers to the temptation to which the puerpera is exposed, by seeing her watchers satisfy their natural wants, to violate herself the dietary rules.

He deplores also the use of the abdominal bandage, a silk sash worn by all pregnant women after the fifth month. This has been the custom since the middle ages. Kangawa sees in that bandage a mischievous interference with the free action of Nature. If you plant a bamboo reed under a house (a Japanese house, which stands, as it were, on a platform) it grows to the height of some inches, then it bends sideways, and only when it has reached the border line of the basement it starts upright into the air. Thus also the natural growth of the child deviates from its right direction if it is tampered with by artificial obstruction. As the fetus holds its head downward the infantile vapor (vital energy) by no means, as the defenders of the bandage suppose, ascends to the upper parts of the mother's body. On the other hand, as these ligatures are generally made very tight, there results a congestion in the skin which enwraps the fetus and covers the part which lies near the maternal breast, that is, the arms of the child. Now, as by the tight bandage the congested blood is compelled to stay there a long time, the descent of the embryo bag is made more difficult, and even violent bleeding or vertigo may ensue. Moreover, when the mother moves, the child is prevented by the bandage from adapting its own position to that of the mother, and an oblique position is the consequence.

I pass now to the other Kangawas. They were the obstetricians of the imperial family in Kioto. To remedy the cruelty of the pointed hook—the Japanese forceps, so to speak, which always made an ugly wound on the occiput or body of the child—Mitsu-sada Kangawa, the third of the glorious race, invented several instruments, for the occiput of a prince imperial could not be injured. This invention served to supply important deficiencies in the use of the simple hook, but the loop that made part of it left occasionally bloody places on the face. To obviate this Mitsu-taka Kangawa, the fourth of the race, contrived another method, which he used at the birth of an imperial prince in 1832. In his operation a silk cloth, broader than the loop, and which covers the entire head, is used, and traction

made upon it in a peculiar way. The head thus is led forth more gently than by the other method.

The last Kangawa, Mitzu-nori, invented a means of performing version in transverse position. It is accomplished by means of fillets passed about the body, with some other contrivances, and by the traction made upon these fillets while the shoulders of the child are pushed back by a fish-bone plate.

This is what the Kangawa family have done.

I finish this sketch with a passage which has struck me as being very curious, as it shows how cleverly the old fox knew how to cover with the mantle of modest discretion some practices useful and even necessary, but very distasteful to the families of his patients: "These operations must be made in a somewhat stealthy manner. The woman accordingly must lie on her back and stretch her legs. The physician sits at the foot end of the bed built with blankets upon the mat, and covers the lower part of the woman's body to the toes with a blanket. Now he so stretches out his legs between the legs of the woman that the soles of his feet are set against her body; he can thus hold the legs of the woman apart with his own legs and make all the manipulations beneath the blanket. Usually the midwife and the parents, especially of the woman, demur at the use of the instruments, because they do not know them and are afraid of them, as they are not as yet in general use. Therefore the physician, if he wants to use any instruments, puts them, before he enters the room, under his garment, whose sleeves, accessible from the inside, serve as pockets. He thus warms them, and, unperceived, pulls them out under the blanket and uses them. After the performance of the operation he is to keep silent as to what he has done."

ON AXIS-TRACTION FORCEPS.¹

BY

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(With eight illustrations.)

It is now over thirteen years since Tarnier drew the attention of accoucheurs to the principle of axis traction and introduced his

¹ Read before the Galveston County Medical Society, December 5th, 1892.

axis-traction forceps. Three years afterward he modified his first instrument and gave it its present form. Like all innovations of sufficient importance to attract general attention, his ideas met with much opposition and some ridicule; but nevertheless the principle of axis traction, and axis-traction forceps

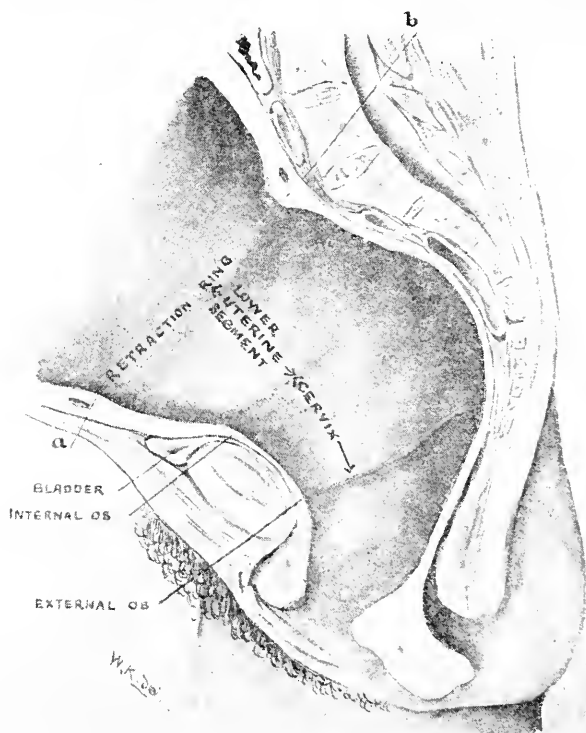


Fig. 1. section of frozen body at end of first stage of labour (Braune).

on the true Tarnier lines, are now acknowledged by most advanced teachers to be the true principle and only scientific instruments applicable to high, and even low, forceps operations.

Perhaps no teaching body has followed more enthusiastically in Tarnier's footsteps than the Edinburgh school—so much so that no Edinburgh specialist carries any forceps in his bag but some form of the Simpson-Tarnier type, and few recent Edin-

burgh graduates think of buying any other form of instruments. The principle of axis traction was for the first time thoroughly elaborated, and accurate plans for the manufacture of these forceps constructed, by Dr. Milne Murray in a paper read before the Edinburgh Obstetrical Society last year : and as an Edinburgh student, and one having considerable experience in the use of these instruments, I feel a great deal of pleasure in drawing your attention to-night to this subject, more especially as the use of the obstetrical forceps is a matter of great interest to every medical practitioner, and one on which most have wide experience and decided opinions.

On the general question of the use of the forceps in aiding delivery it is not my purpose to speak. I would like, however, to refer to the relation of the mechanism of the first stage of labor to instrumental delivery. A section of the uterus near the completion of the first stage—such as Braune's famous frozen section, which I have reproduced in Fig. 1—shows that during the dilatation of the cervix the uterus becomes divisible into two distinct segments, an upper one, lying above the ring *a b*, which has become thickened and shortened during the process, and a lower segment below that ring which has been elongated and thinned out. The ring *a b* is not at the level of the internal os, but considerably higher up, and the segment between that ring (known as the "contraction," or, better, "retraction" ring) and the dilated external os is composed of dilated lower uterine segment and cervical canal. This thinning-out, dilatation, and accompanying elongation is produced by :

1. The wedge-like, dilating action of the bag of waters and presenting part.

2. By the contractions and accompanying retractions of the upper segment. The lower segment does not contract at all during the pains ; it remains passive. Only the upper segment contracts, drawing the lower segment over the presenting part (membranes or fetus, or both) like a glove, at the same time thinning, elongating, and dilating it ; whilst at the relaxations between the pains the upper segment does not return to its former length, but remains shorter after each pain than it was after the previous one. The greater part of the dilatation of the lower segment is not due to the wedge-like action of the advancing fetus, but to the thinning-out action of the uterine contractions ; it is vital, not mechanical, and cannot be imitated by

dragging down the presenting part by artificial means. Further, till this segment be completely dilated there is, except in special cases, seldom any danger to either mother or child; and for this reason, and because nothing but uterine contractions can fulfil the necessary conditions of the mechanism of the first stage of labor, forceps is distinctly contra-indicated till the os be fully dilated, except in special circumstances, as: 1st. Where to wait for full dilatation would endanger the life of the mother, as in placenta previa, some cases of accidental hemorrhage, and eclampsia. 2d. Where it would endanger the life of the child (as in prolapse of the cord, where undoubtedly speedy delivery is the proper treatment). 3d. Where the membranes have ruptured, the waters have escaped, and the head is still at the brim. Here the choice is between axis-traction forceps and turning, and I would give the preference to axis-traction forceps when the waters have drained away and the true conjugate measures two and three-quarter inches and over. But of that hereafter.

When the presenting part lies at the vulva the temptation to use the forceps is strong; but it would be well for us to remember that it is the intermittent advances of the head and its pressure on the perineum that is Nature's method of dilating the vulva, and that, to ordinary human nature, it is much easier to wait ten to fifteen hours for the dilatation of the cervix than to wait one to two hours for the dilatation of the parts below the os externum, with the head all the time within easy reach of the finger. In multiparæ with readily dilatable vulva, where pains only are wanting, it is a different matter, and the forceps may be used very soon after the completion of the first stage.

Passing now to the subject of axis traction, when one considers how to aid the advance of the fetal head through the maternal passages by artificial means, one is confronted by the problem how to do so without appreciably interfering with the mechanism of natural labor. First, the maternal passage is curved, the axis of the passage continually changing from its commencement at the brim to its termination, not at the pubo-coccygeal diameter, but at the vulvar orifice, as it appears when stretched by the passing fetus (see Fig. 2). The axis of the entrance is approximately in a line joining the tip of the coccyx with the umbilicus, that of the cavity changes constantly through every inch of its length, and the axis of the outlet is forward

and downward. Not only is the axis curved, but, that the fetal head may pass with the greatest ease, it must enter the canal flexed on the sternum, and in the oblique diameter; become more flexed as it gets deeper in the cavity; rotate round its own axis till the occiput assumes an anterior instead of a lateral position; and finally, as I shall show at some length, pass the perineum *without* extending—extension of the head while it

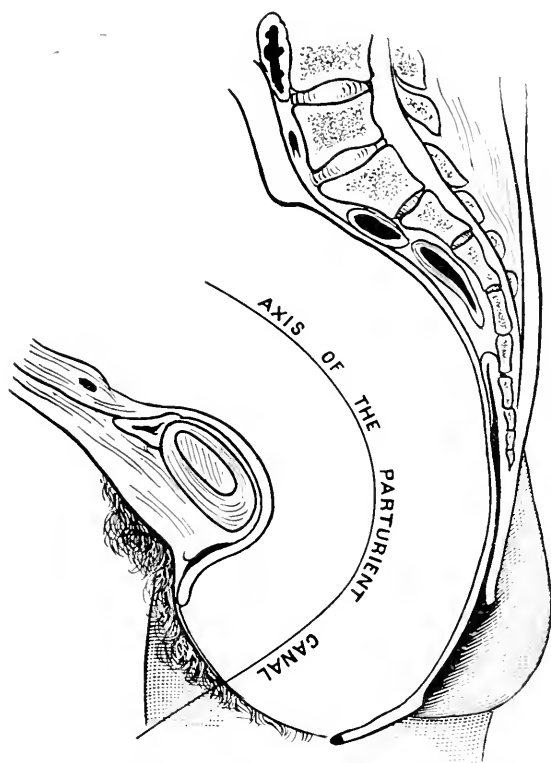


FIG. 2.—Diagram to show the axis of the parturient canal as the head passes the vulva.

lies on the perineum being one of the main causes of perineal tears. Now, if we could fix an instrument to the fetal head which would grasp it all round without materially altering its bulk; attach to the centre of the head a bent traction rod which would clear the maternal parts and be rigid enough to enable us to apply the force in the proper axis of that segment of the parturient canal through which the fetal head is passing, and which should be so jointed and balanced that it should in no

way interfere with the various movements of flexion, rotation, and change of direction which the head tends to assume in its journey; and if we could further fix to the head an indicator which would infallibly tell the direction in which traction should be made in every inch of its descent, we would have an ideal tractor.

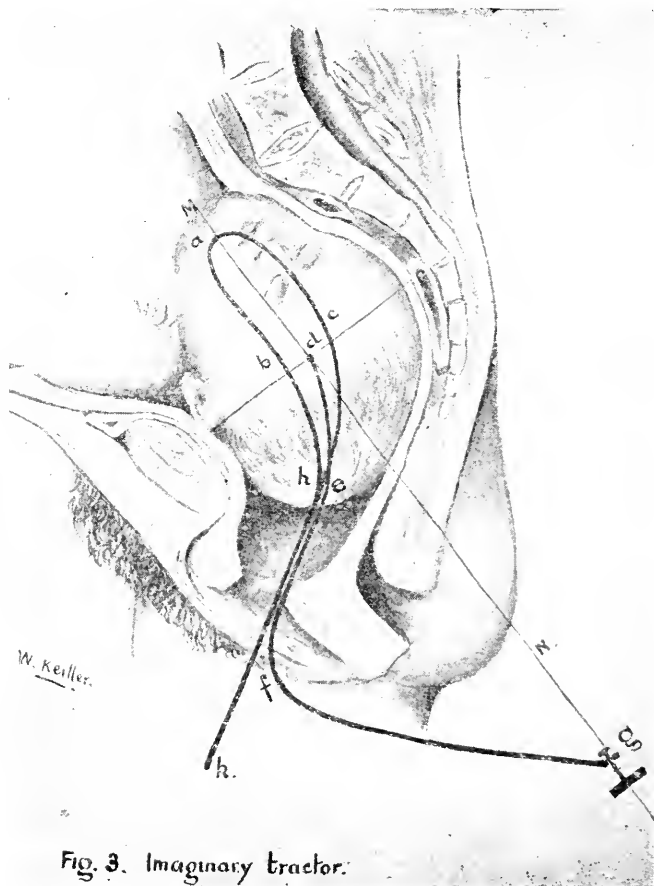


Fig. 3. Imaginary tractor.

Fig. 3 presents us with a design of an ideal tractor. *a b c* is the grasping portion of the instrument (we have nothing to do at present with the method of fixation); *d* is the point of attachment of the traction rod, *d e f g*, which is a rigid bar, bent to clear the maternal parts and yet produce traction in the line *d g*, which is in the axis, *M N*, of the parturient canal: hinged at *d*, so that the fetal head may become flexed or extended with-

out interference; and hinged at g , so that the head may rotate round the axis $d g$.

Now, that the head may be flexed or extended as it is influenced by the walls of the passages, the point d must be opposite the centre of the head. If the rods be hinged behind d they will tend to produce extension, drawing the chin away from the sternum; if in front of d , they will tend to increase flexion of the chin on the breast bone. $h k$ is an indicator fixed to $a b c$; it will change its direction as the head descends.

That the rigid curved bar $d e f g$ will produce traction in the line $d g$, just as surely as if it were a straight rod from d to g ,

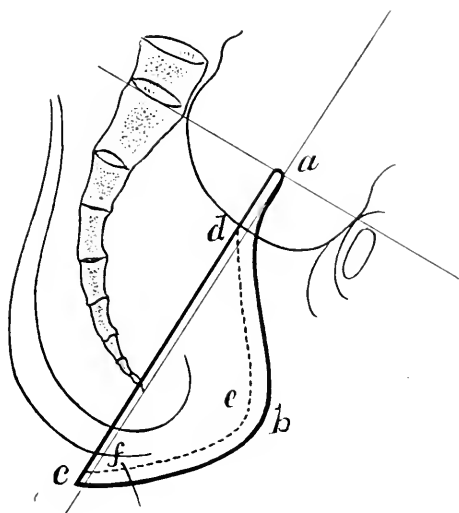


FIG. 4.

hardly wants demonstration; but it has been thus simply illustrated:

Suppose that, in Fig. 4, $a b c$ is a steel plate hinged to the fetal head at a . If traction be applied at e it will act along the line $a e$, and no change in the line of traction will be effected by simply cutting out the segment $d e f$, thus converting the plate into a rigid bent bar.

Let it be further provided in this ideal tractor that the portion $e f$ (Fig. 3) of the traction rod lies parallel to the indicator, $h k$, when the line $d g$ is in the axis of the segment of the pelvic canal through which the head is passing.

We shall now study what occurs as we use the ideal tractor.

The head is at the brim in the right oblique diameter, the occiput directed toward the left cotyloid cavity. Our tractor, being applied, will fit over the right cheek and left parieto-occipital region of the fetal skull; the traction rod, held parallel with the indicator, will produce traction in the axis of the inlet, or in a line from the umbilicus to the coccyx of the mother. Now draw down the head, being careful always to follow the indicator with the traction rods, but never to touch or press on it—a matter of the utmost importance. As flexion increases the

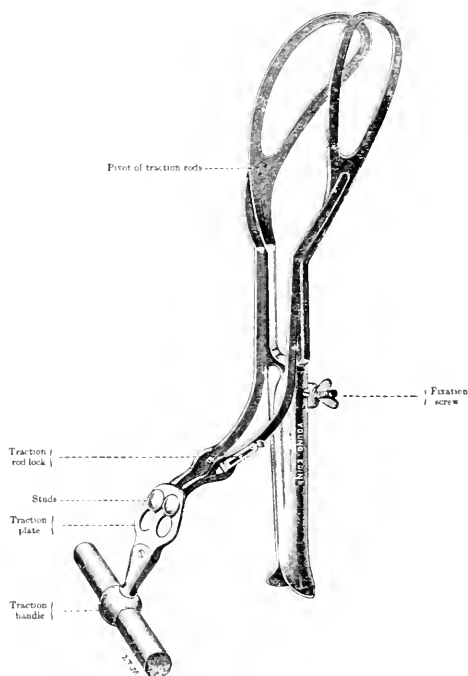


FIG. 5.—Milne Murray's axis-traction forceps.

indicator will be first carried a little backward, then it will pass forward as the head descends and changes its direction with the forward curve of the pelvic axis. Further, as the occiput rotates to the front the indicator will point round toward the patient's right side. As soon as the rod points distinctly toward the right, remove the tractor and reapply it. The head now being in the antero-posterior diameter of the pelvis, the tractor will catch it in the biparietal diameter, just as the forceps catches the head in all low operations. Proceed to apply traction again,

and, as before, the indicator will move forward as the axis of the pelvic canal changes; and by keeping the rods always parallel to the indicator it is impossible to apply traction in any other than the proper axis of that segment of the pelvis through which the head is passing.

Such a tractor would be an ideal one; and now observe how closely the axis-traction forceps approaches our imaginary tractor. The famous long forceps of Sir James Simpson has been used as a basis (I speak of the Milne Murray modification of the Simpson-Tarnier models; see Fig. 5). It possesses the usual cephalic and pelvic curves, the shanks being close together and parallel till the commencement of the cephalic curve; the lock is the English design; the handles in the newest instruments are as light as possible, and formed entirely of metal so as to be easily rendered aseptic. No shoulder is necessary, and their weight is much reduced, the handles being used to introduce the blades, lock the forceps, and act as the indicator of changes in the pelvic axis, not as a means of applying traction.

At the upper part of the handles a thumbscrew, of which the nut cannot be detached, fixes the blades immovably after they have been applied. Thus we have an efficient and light tractor, a means of applying and fixing it, and an indicator of any change in the position of the fetal head as it descends.

The traction rods are light, rigid steel bars, permanently hinged, not opposite the centre of the head, which is found impracticable, but a little below and in front of the centre. They are so bent that when the traction handle is in the axis of the fenestrum, or, in other words, in the line which runs through the axis of the pelvis and the centre of the fetal head, the straight part of the rods lies parallel with the shanks or indicator. The most important point about their construction is that they should be hinged as near the centres of the fenestra as possible, and that the straight part of the rods and shanks should run parallel and close together when the traction handle is directly in the pelvic axis. They are locked together when in position, to secure their acting conjointly. Hitching on to two buttons is the traction handle, in the latest patterns also entirely of metal. It is hinged so as to bend laterally; and also, and most important, it permits free rotation of the blades and head round the line of traction as axis.

With such an instrument symmetrically applied to the fetal

head, traction cannot be made other than in the axis of the pelvic segment through which the head is passing, if care be taken to keep the rods parallel to, but *not touching* or *pressing against*, the shanks; while the changing position of the shanks is a most delicate indicator of any change in direction of that axis. Further, the whole instrument is so hinged that there is never any interference with any movement of the descending head, either flexion, extension, or rotation, as it adapts itself to the passage through which it is travelling.

It seems scarcely necessary to say that, from the time the forceps is applied till it is removed, the handles must never be touched; they must be left perfectly free, and traction applied by the traction handle only.

The fact that the traction rods are fixed in front of the centre of the fetal head tends to favor flexion, and does not appreciably interfere with its adaptation to the changing pelvic axis. In occipito-posterior presentations this attachment of the rods may be a slight disadvantage, as it tends to produce extension. Practically, however, the forceps works excellently in those cases.

As an illustration of the perfect freedom with which the fetal head adapts itself under traction with this forceps, one time that I applied it to an occipito-posterior presentation the occiput rotated round to the front while I was drawing down the head, and head and forceps were born as occipito-anterior, having rotated through nearly 180° . Of course this seldom occurs. The patient's pelvis and vulva were roomy; she was a multipara, and needed only strong pains to complete the birth.

If I am not trespassing too long on your time and patience, I would like to glance at one or two previous attempts at producing axis-traction forceps, and to end by showing the scope of their application.

"Pajot's manœuvre," illustrated in Fig. 6, in which the left hand is used as a pivot round which the forceps is rotated by the right, is an attempt to apply traction in the pelvic axis with the ordinary long forceps. There is much risk of bruising the maternal tissues, much force is lost, and there is no indication of the direction in which the force is being applied.

In Hubert's forceps (Fig. 7) and other modifications of the same idea, in which there is a rigid traction bar projecting backward from the forceps handles, and in other patterns where the handles themselves are bent backward, traction can be made

in the axis of the fenestra of the blades, *i.e.*, the axis of the head; but adaptation of the head to the pelvic curve is interfered with, and there is nothing to indicate whether traction is being made in the axis of the pelvis or not. Everything depends on the skill of the operator. In the Tarnier pattern there is an infallible mechanical indicator of the line in which traction should be applied.

Scope of the Forceps.—First, in low operations. With the head on the pelvic floor, the axis-traction forceps is still the best instrument; for it is inconvenient to carry both long and short forceps, and, as high operations are comparatively few, it is important, by constant use of the long forceps in the low operation, to train one's self to apply them as easily as the short straight ones. But, further, the indications, when the head is on the



FIG. 6.—“Pajot's manœuvre.”

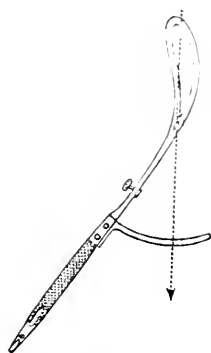


FIG. 7.—Hubert's forceps. The arrow shows direction of traction.

pelvic floor, are still best met by the axis-traction principle. The pelvic canal from the coccyx forward is by no means straight—it is distinctly curved, and the axis is always varying (see Fig. 2). This is the very place where tears are most likely to take place; it is, therefore, of the utmost importance that the head be born in its smallest diameters. In unassisted labor the head descends with its smallest suboccipito-bregmatic diameter in the dilating ring of maternal tissue, and the chin flexed on the sternum, till the occiput engages under the symphysis; then the suboccipital region is caught by the pubic rami, and brow and face rotate round the point. Thus an ever-increasing diameter of the head passes over the perineum: first suboccipito-bregmatic, smallest of all, then the suboccipito-frontal, suboccipito-facial, and

lastly the large suboccipito-mental; and if the perineum does not split it is a wonder.

Here, at least, it is the duty of each physician to assist Nature, to prevent extension of the head, and to secure that, instead of becoming fixed under the pubic arch, the occiput of the child shall continue to descend with the rest of the head, and that the extension shall not be allowed to take place till after the perineum has been passed. This can be done, when the forceps is not in use, by grasping the head thus, the thumb in the distended anus catching the face, and the fingers over the occiput, so that the whole head is under complete control and its extension can be prevented; while the fingers over the occipital region can drag the occiput down, and encourage descent of the whole child with the head in the flexed position.

Where the forceps is used, let it be still used as a true axis-traction instrument; by no means forsaking the rods and taking to the handles, as is advised by the Tarnier school. Be more careful than ever to follow the indications as to the axis of traction given by the handles, and get the head born by very gentle traction between the pains.

Thus Milne Murray states that in ten years' practice, where he has used axis-traction forceps in all kinds of cases, he has never had a single tear beyond the slight slit in the margin of the mucous membrane which is inevitable in all first labors.

Personally I have had very good results. Croom especially emphasizes the use of this forceps in saving the perineum in occipito-posterior presentations.

Passing now to the high operation, if axis-traction forceps are valuable in the low operation they are invaluable when the head is at the brim.

Milne Murray states emphatically that "a properly constructed pair of axis-traction forceps will deliver a child in a flat pelvis down to the limits which can be dealt with by turning, and with a much greater chance of delivering it alive." I can myself speak of the comparative ease with which a full-time child can be delivered through a true conjugate of three inches. Milne Murray has delivered a full-time child through a true conjugate of 2.75 inches.

It is a mistake to state that in such cases the occipito-facial grasp that one gets of the head when it is lying in the transverse at the brim causes bulging in the biparietal diameter; lengthen-

ing occurs, not transverse bulging. Further, the tendency of the forceps to favor rotation downward of the anterior parietal bone is of the utmost importance in facilitating the progress of labor in flat pelvis, this being an essential point in the mechanism of these cases. The success of turning depends mainly on when it is undertaken; after the uterus is drained of fluid it is always more hazardous; and if the accoucheur is to turn with safety to the child, he must diagnose the case early, and turn as soon as the os is sufficiently dilated, if possible breaking the membranes to do so, or using the bipolar method. I have no hesitation in saying that, with a true conjugate at the brim of three inches and a dry uterus, axis-traction forceps will give much the better prognosis as regards the child, and no worse as regards the mother.

Lastly, let me allude to the value of axis-traction forceps in hastening delivery of the breech. With the breech in the cavity or at the pelvic floor, I can speak from experience of the efficient manner in which they hold, whether applied over the sacrum and flexor surface of the thigh or over the outside of both thighs.

Of course, as always, traction is to be applied gently.

It would be well, perhaps, to finish with a caution to those about to buy axis-traction forceps. It by no means follows that all instruments sold as axis-traction forceps are capable of producing traction in the axis of the pelvis. The following are Dr. Milne Murray's directions for testing the truth of their construction (see Fig. 8):

"A piece of paper about eighteen inches square should be

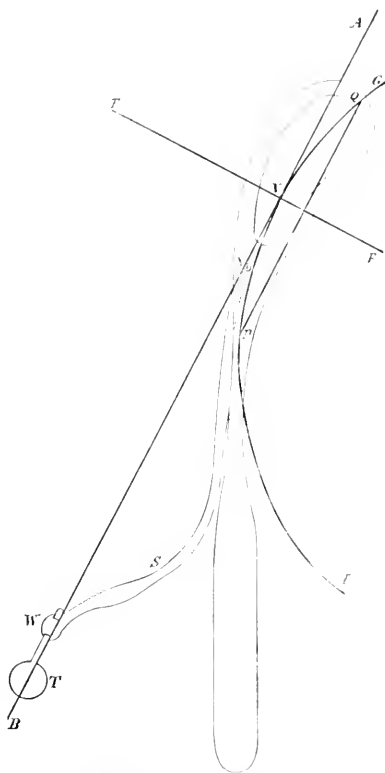


FIG. 8.—Mechanical projection of axis traction forceps (Murray).

firmly stretched on a drawing board or other smooth surface. A pencil line should be drawn down the centre of the paper. Place the left blade of the forceps on the middle of the paper so that the shank coincides with the line already drawn, the hollow side of the blade being upward. Trace an outline of the blade on the paper, holding the pencil perfectly vertical in doing so. Mark the point at which the shank joins the curve of the blade; call this point P. Mark the centre of the tip of the blade; call this point Q. Join P Q by a straight line. This will form the chord of the arc which forms the middle of the curve of the blade. Bisect P Q by a line at right angles to it, E F. Describe a circle, G Q V P H, with a radius of seven inches, and whose centre lies on E F. The arc Q V P lies in the middle of the blade. Now draw a tangent, A B, to the circle Q V P at the point V. This will be parallel to the chord Q P. Lay the blade on the paper in its original position, taking care that the points and P Q correspond precisely with their position on the forceps. If the traction rods are properly constructed the *stud W will lie on the line A B when the rod lies close to the "shank."*

UMBILICAL AND VENTRAL HERNIA.¹

BY

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 ville City Hospital, etc.

THE importance of studying carefully the best methods of treating hernia is now emphasized because of the increased frequency of this disease following laparotomy, and especially because the improved technique in surgery makes the operation far less dangerous than it formerly was. In fact, the operation for radical cure of hernia, which was until recently considered

¹ Read before the Southern Surgical and Gynecological Association at Louisville, November 16th, 1892.

by most of the leading surgeons of this country unjustifiable because of its great mortality and the unsatisfactory results, is now, in the practice of the best surgeons, except in extreme cases, practically devoid of danger, and the patients may be permanently cured.

Until we learned the value of surgical cleanliness surgeons were consistent in their refusal to perform this operation, because infective peritonitis was so constantly fatal. Modern antiseptic and aseptic precautions have practically excluded this danger, and with its exclusion the patients recover from the operation, and the divided structures unite primarily and bring about a condition that more permanently resists subsequent strains. Hence they not only recover from the operation, but usually have no return of the hernia for many years, if at all.

The subject of hernia in its entirety is so vast that it would be useless to attempt, even in the briefest way, to allude to more than one or two varieties in the twenty minutes allowed for reading my paper. I will therefore confine my remarks to the preventive treatment of ventral hernia following laparotomy, and the treatment of umbilical hernia.

There are many cases of ventral hernia that could have been prevented had the proper treatment been observed in the closure of the abdominal incision. To prevent hernia following laparotomy it is necessary to get perfect union by adhesion of all the layers of tissue forming the abdominal wall—the peritoneum, muscles, the deep and superficial fascia, and the skin. But especially must we get union of the layers of fascia, for unless this be done the other layers will gradually separate and hernia will follow. This cannot be done unless we succeed in bringing the cut edges of the fascia in even and perfect apposition long enough for strong union to occur. This is impossible if there is suppuration in the wound, and is generally impossible unless the several layers of tissue be separately united by the buried suture. In operations for large tumors where the abdominal walls are relaxed so that there is no tension upon the wound, all the layers may be evenly and perfectly brought together, and good results may follow, by uniting the incision with interrupted sutures carried through the entire thickness of the abdominal wall. But in four-fifths of the operations that are now done these conditions do not exist, and there is necessarily more or less tension immediately upon the sutures. Hence

we have no assurance that the several layers are brought into apposition, except it be done by separate union with the buried suture. Some operators claim that they have not had hernia following laparatomies, and that they have sutured the abdomen after any fashion that at the time suggested itself to them; but if these men will look more carefully into the subsequent history of their cases, they will find that hernia is more frequent than they had supposed. I did not believe, in my earlier laparotomy work, that hernia would follow my operations, and I was bold in asserting that I had no hernia complications; but I now find that I have, and in some of the cases where the immediate conditions were apparently the most favorable and permanent. Of course until recently the buried suture could not be used because of the imperfect knowledge of the best means to protect the wound against infection. This objection having been practically overcome, almost any suture may now be buried in tissues, if properly introduced, and will not cause suppuration. It is necessary to introduce an aseptic suture into aseptic tissue and exclude it from the atmosphere. There is a precaution, however, in addition to perfect cleanliness, that must always be observed in the use of the buried suture, otherwise we may have suppuration. It is next to impossible to do any operation that is *absolutely* aseptic, as there may be a few bacterial spores in the wound or upon the suture; but these are readily taken care of and destroyed by the cellular elements, unless the power of resistance is impaired and conditions favorable to their development are furnished. If the sutures are drawn too tightly in all of the layers, or at any point, the normal blood and nerve supply to the part will be interfered with, the resisting powers to bacterial development weakened, and suppuration may result. In my former operations with the buried suture this difficulty was annoying, but with a broader experience I now have but little trouble in this particular. I have several cases in the Infirmary recovering from laparotomy where the incision was closed with the buried suture; union is perfect, and the tissues about the wound are nearly as soft as the other parts of the abdomen. I prefer the kangaroo tendon, because it is easily made and kept aseptic, and when chromicized holds its integrity long enough to insure perfect union of the surfaces. I do not consider cat-gut so reliable, unless it is prepared by some person practically familiar with the best methods of sterilization, and there is dan-

ger of too rapid absorption unless it has been carefully chromicized. The entire wound should be closed by the buried tendon. It may be done by the cobbler's stitch, after the fashion of Dr. Henry O. Marey, or by the continuous and blind stitch, and then hermetically sealed with iodoform-collodion with a few fibres of absorbent cotton spread over the incision.

The revolution in the treatment of hernia in the last twenty-five years has been remarkable. Especially is this true in regard to the treatment of umbilical hernia. It appears that the first operation in America during this century, for the radical cure of umbilical hernia, was successfully performed by Dr. Horatio R. Storer, of Boston, in 1866. He was severely criticised by the surgeons of Boston and of this country for attempting such a foolhardy operation. I do not think that any successful surgeon would now decline to operate upon a well-marked umbilical or ventral hernia; and it is the correct thing to operate for radical cure as soon as the hernia is well developed, for the operation is then practically devoid of danger, if properly performed, and the permanent results will be far better than if let alone until the hernia has grown large and complications have arisen that make the operation a difficult one. One of the serious questions formerly considered was the treatment of the sac because of infective peritonitis when it was opened. This danger no longer exists, and in operating for radical cure of a large or old hernia the sac should be sutured at its base and removed. There is no other method of treating the sac that from a surgical standpoint is rational or that brings about a condition approximating the normal condition. These operations, except in cases of strangulation or extensive adhesions, are little more dangerous than an ordinary exploratory laparotomy. But, of course, great care in bringing together the layers of tissue must be observed if we want to prevent a recurrence of the trouble. Fortunately the adhesions are usually omental, which are easily separated and cause no trouble. If there are intestinal adhesions this is a complication that must be carefully managed, so as not to impair or destroy the integrity of the bowel. Sometimes in fat persons the sac is filled with an omentum so large that it cannot be returned unless the ring be widely divided. In these cases, especially if the adhesions are extensive and the omentum somewhat injured in separating them, it should be ligated in sections and removed. This adds very little to the danger of the operation, for large

quantities of omentum may be removed with impunity, as I have frequently done. If the contents of the sac, when all the adhesions are separated and the recti muscles relaxed, cannot be returned into the abdomen without too much and too long efforts, the ring of the hernia should be enlarged; but usually a little nicking at one point of the constriction will be sufficient. When the contents have been returned the thin skin over the hernia should be cut away, and the peritoneum should be resected a little beyond the bottom of the ring, so as to better refreshen the edges above and to be more positive of getting an even, smooth peritoneal surface when it is united. It may occasionally be better to resect the ring also. The peritoneum should be closed by a continuous suture instead of ligation in mass. When the sac is removed and the peritoneal edges brought together, the remainder of the operation is extraperitoneal and may be completed without risk of soiling or infecting the abdominal cavity. It is necessary to refreshen every part of the surfaces before we attempt to unite them, and to split the tissues, and, if possible, expose the fascia so that it also may be united. The number of layers of suture necessary to close the wound will depend upon the thickness of the wall; but two or three layers will be needed in a thin wall, while four or five may be required in a thick wall. If the hernia is small and the parts come easily in apposition, it will not be necessary to use any suture except those that are buried; but in fat people with old and large herniæ it may be better to introduce several silk or silver-wire interrupted sutures half an inch from the surface of the incision down nearly to the peritoneum, to act as splints or supports to the buried sutures until firm union has occurred. In such cases, unless the kangaroo tendon or the catgut is large and thoroughly chromicized, it is probably correct to use the silk suture, because it will positively not be absorbed or weakened in its resisting power until union is perfect. If the wound is entirely closed by the buried suture, the best dressing is iodoform-collodion, as recommended after a laparotomy. These patients should be kept in bed for two weeks after the operation, with a binder tightly fitted around the abdomen; and when they are permitted to sit up, and for a year afterward, should be required to wear constantly a tight and evenly fitted abdominal support.

In conclusion I will report an interesting operation for um-

bilical hernia that I recently performed, which was not only immediately successful, but the condition of the united wound indicates that the woman will remain permanently cured. I report this case because it shows a condition as difficult to treat and as dangerous as any we will have to contend with, unless in cases where there is strangulation that has partially or entirely destroyed the vitality of the omentum or the intestine.

Mrs. W., Paducah, Ky., æt. 53 years, the mother of several children, has had umbilical hernia for about fifteen years: for several years it has been irreducible, and has increased in size and caused much pain and inconvenience. On September 15th, 1892, she suffered intensely with partial strangulation, which was finally corrected by the persistent but careful manipulation of her physician, Dr. Jewett. He devised and applied a perfectly fitted abdominal support, and sent the patient to me on September 25th. She weighs two hundred and fifty-one pounds, and the hernia is the size of a man's head and cannot be reduced. On the 27th I performed an operation for radical cure. The sac contained nearly all of the great omentum and the transverse colon. The omentum was firmly adherent; when the adhesions were separated it was torn in many places, and was so large that it was impossible to return it into the abdomen. It was ligated in sections, and a piece nearly as thick and as wide as a man's hand, and twelve inches long, was removed. The ring was so small that it was necessary to slightly nick it before the bowel could be returned. The sac was resected to a little below the bottom of the ring, removed, and closed by a continuous suture. The tissues above were widely split to expose the fascia, and the superfluous skin was cut away. The wound was closed by layers of continuous silk sutures, and several deep silver-wire interrupted sutures were used. She had no outward symptom, and the structures in the hernial region are so thick and solid that I do not believe there will be a recurrence, though I have advised her to wear a well-fitted abdominal support for a year. Possibly heavy kangaroo tendon or catgut well chromicized would have done as well as silk.

ECTOPIC PREGNANCY TWICE IN THE SAME PATIENT, THE
SECOND TIME COMPLICATED BY INTESTINAL
OBSTRUCTION.¹

BY

CARL BECK, M.D.,
Chicago, Ill.

ECTOPIC pregnancies, or rather the recorded cases, are becoming very frequent, so that if the case is not extraordinarily complicated or somewhat exceptional it is now hardly worth describing. Yet, though we have made great advances in the anatomy and the treatment of this disease, the etiology is not fully cleared up, and every instance that sheds light in this direction must be welcome. Those cases where the ectopic pregnancy has occurred twice in the same patient, as in the case here recorded, are very important; they are either extremely rare or seldom diagnosed; but they must, if analyzed carefully, give a clue to the cause, for if the same condition recurs twice the cause is very likely the same and more easily found.

History.—Mrs. E. M., æt. 32 years, American; from healthy parents; no constitutional hereditary disease in her family. She menstruated regularly from her fifteenth year, and never was sick. Married at the age of 20. First child born eighteen months later; the labor pains continued for three days. After delivery she suffered from pain in the abdomen, but had no fever; her physician called it an inflammation of the bowels. This first child died of general atrophy. She had five more children, four of whom died in infancy. The last confinement was two and a half years ago; the child is living. Up to February, 1891, she menstruated regularly. Then she missed one period, and six weeks later began to suffer with severe colicky pains. Her attending physician diagnosed an inflammation of the bowels, and said that there was a small tumor in the pelvis, on which side she could not tell. During an attack of severe pain the tumor burst, and the physician pronounced her disease ectopic pregnancy. When this bursting occurred she passed blood clots

¹ Read before the Gynecological Society of Chicago, November 18th, 1892.

from the vagina, but she does not remember having seen any membranes. The physician called an experienced surgeon in consultation. On March 20th an operation was performed by Dr. C. A. L. Reed, of Cincinnati. The patient recovered, and menstruated four weeks later. The particulars of the operation are not known to the patient. Immediately after the operation her bowels moved regularly, but gradually she became a sufferer from constipation, which was very troublesome during the months of June and July, 1892, at which time she used to have only two passages a week.

August 23d I was called to see her. She then lived in Chicago. She had missed her menstruation twice and thought herself pregnant. That day she had been washing and exerting herself very heavily, and toward evening felt an acute pain in the abdomen. She thought that she was going to have a miscarriage. I examined her; found the abdomen not enlarged, but very tender; the vagina and the cervix with all the characteristics of pregnancy; the uterus enlarged to about the size of a three months' pregnancy, soft, but of somewhat irregular shape, the largest part lying in the right hypogastrium. There was no flooding and no contraction—on the contrary, the uterine tumor seemed to me very flabby. Nothing could be felt of the adnexa. What attracted my attention more than the pregnancy was that the patient had had no passage for four days, was very pale, and had a rapid though strong pulse. She did not have any fever. I ordered an enema and salts internally, but both remedies failed, and when I called the next morning the patient had grown worse, had vomited several times, and the abdomen was more meteoristic and very sensitive. A high enema was without effect, and all cathartics—even very powerful ones, as elaterin—failed. When, besides, the patient began to vomit fecal matter, there was no doubt that I had to deal with an intestinal obstruction, which, because of the previous laparotomy and the gradually aggravating constipation, was most likely due to old adhesions.

I proposed an operation to the patient, who consented to have it done. I stated that I would not interfere with the pregnancy, but that it was most probable that after the operation she would miscarry. I operated August 26th. An incision was made, parallel to the first, from the umbilicus to the pubes. A large tumor of bluish appearance presented itself, embedded

in adhesions from all sides. It seemed to be the pregnant uterus, though the walls were very thin at the apex and fluctuated so markedly that I was not sure whether it was not the cyst of an extra-uterine pregnancy. I therefore made my way into the pelvis, breaking up all the adhesions, which was more easily done on the right side than on the left, where intestines and genital organs were matted together. On the right side a short tube, about one-half of the normal length, was seen ending suddenly in the large tumor. The ovary was normal. Toward the pelvis the tumor became more solid, and there were to be distinguished, though not distinctly, two parts, so that it was evident that this was a tubo-uterine or so-called interstitial pregnancy. I made an incision over the thinnest portion, and extracted a fetus and the membranes of a pregnancy of over three months. When the fetus was removed the walls were easily seen to be hypertrophic and muscular, contracting and getting thicker, and by introducing my finger into the cavity I could distinctly feel the difference between the uterus and tube. The placental portion of the membranes had been attached to the tubal portion. An extirpation of the sac was, on account of the indistinct determination of the same, not possible without extirpation of the entire uterus, which, considering the universal adhesions, would have been fatal. I therefore closed the incision by deep and peritoneal stitches. But then I had to look for the cause of the obstruction—for certainly this accidentally detected condition had not caused the ileus—and found a loop of the distended jejunum, around which two band-like and pretty hard adhesions were constricting the bowel, so that a passage of even gas was impossible. Upon tearing these the normal calibre of the gut was restored. A strip of sterilized gauze was passed through the lower angle of the wound for drainage, and the abdomen closed. In closing the abdominal wound I noticed several deep sutures of the previous operation lying in the cut, and removed the protruding ends. It may be that one of these was left and became the cause of the small fistula now in the middle of the otherwise well-united cicatrix.

[A few days ago the patient informed me that she felt something moving in the fistula, and on searching I found an old suture; the fistula has since disappeared.]

The patient recovered without any disturbance. Two days after the operation her bowels moved. Fourteen days afterward

she left the hospital, and is now perfectly well. Menstruation is normal every four weeks; there is no disturbance of the bowels; she is wearing an abdominal supporter; the cicatrix is as firm as can be.

A point in the history is that one month after the operation the husband called on me to be treated for a stricture from a gonorrhea contracted before his marriage. About the same time I received a letter from Dr. Reed which explained to me some obscure points in the case. He writes:

“CINCINNATI, September 25th, 1892.

“DEAR DOCTOR BECK:—Have you recently done a section for ectopic pregnancy in a patient upon whom I had previously operated for the same trouble? CHARLES A. L. REED.”

This was a case of repeated ectopic pregnancy, therefore, the second being complicated by intestinal obstruction.

The literature is very poor in such instances. I have been able to find a few similar cases recorded, but of the small number there are only two certain. “Certain” means that the diagnosis was made directly either by operation or post-mortem.

The cases are as follows:

1. Veit, Jr.,¹ performed laparotomy twice in the same patient for ectopic pregnancy within one year, with success.
2. Kletzsch² had a patient upon whom Gaillard Thomas had operated for ectopic pregnancy, and who three years later, after having menstruated regularly up to that time, gave all the symptoms of ectopic gestation during three months, which symptoms disappeared entirely under the treatment with the faradic current.
3. Veit³ had, besides case No. 1, two other cases where he made the diagnosis by the symptoms.
4. Olshausen⁴ has had a characteristic case of this kind—extra-uterine pregnancy; rupture of the sac in the tenth month; laparotomy three weeks after bursting and eighteen days before term; living child free in the abdominal cavity; extirpation of placenta; no sac; recovery; child lives. One year later second laparotomy on account of threatening fatal hemorrhage; pregnancy of two months found in other tube; recovery.

¹ Mentioned in the *Gesellschaft für Geburtshülfe und Gynäkologie* in Berlin, 10. Mai, 1889.

² *AMERICAN JOURNAL OF OBSTETRICS*, May, 1888.

³ *Centralblatt für Gynäkologie*, No. 24, 1889.

⁴ *Deutsche medicinische Wochenschrift*, 1890, Nos. 8-10.

5. Lawson Tait¹ had a patient upon whom he had extirpated the right tube on account of ectopic pregnancy; eighteen months later there was a normal confinement, and fifteen months after this an internal fatal hemorrhage which proved to be an ectopic interstitial pregnancy in the fourth month.

6. E. Herman² had a case with all symptoms of internal hemorrhage from an ectopic pregnancy in the third month, with recovery. Two years later the patient was operated on and the remains of an old and a new ectopic pregnancy were found.

7. A similar case was found in a post-mortem by Siegenbeck van Henkelom.³

8. R. Frommel⁴ had a case in which he performed laparotomy on account of an ectopic intraligamentous pregnancy. Four years later all symptoms of an internal hemorrhage from an ectopic pregnancy. The tumor disappeared gradually.

9. Leopold Meyer⁵ has had a similar case.

10. Mackenrodt⁶ and (11) Winckel⁷ record other cases.

Besides these Olshausen mentions Puech as reporting several cases,⁸ but I could not find them.

Inasmuch as the physiology of ovulation and impregnation is somewhat obscure, these abnormal processes are surely still more so. We find that the mechanical theory is most generally accepted. The normal route the ovule takes from the ovary toward the uterus being obstructed, it therefore goes only as far as it can, and if impregnated, and it finds there a favorable ground for its development, it thrives as long as the surroundings allow it. These obstructions have been found in (1) loss of the ciliated epithelium; (2) flexions of the tubes, caused by the peritubal inflammations; (3) polypoid growths; and (4) congenital stenosis and corkscrew formation with diverticula.⁹

As far as the literature of the original articles has been accessible to me, most of the patients with repeated ectopic preg-

¹ British Medical Journal, 1888, pp. 1801-2.

² Ibid., pp. 1152, 1153.

³ Centralblatt für Gynäkologie, 1887, No. 3.

⁴ Deutsche medicinische Wochenschrift, 1890, No. 23.

⁵ Hospitals Tidende, Kjöbenhavn, 2. Juli, 1890.

⁶ Verhandlungen der Gesellschaft für Geburtshülfe und Gynäkologie, 8. Juni, 1892.

⁷ "Lehrbuch der Geburtshülfe."

⁸ Gazette Obstétricale, No. 2, 1879

⁹ A. W. Freund in Volkmann's Sammlung klin. Vorträge, No. 323.

nancy have been of advanced age and multiparæ. Some of them have been found to have healthy pelvic organs—tubes and ovaries, that is, free from any inflammation or adhesions; but then the tubes were in an infantile condition (corkscrew formation with many diverticula) which A. W. Freund has described, and to which Frommel and Meyer ascribe the cause in their cases. Frommel has made a microscopical examination of the tubes of one of his cases, and has found both sides of the tubal swelling produced by the growing ovum, the tube being twisted like a corkscrew, so that the lumen of the same was found twice in the same cut, which fact easily explains why that ovule did not go further. Further, the fact that both tubes could produce such an obstacle, so that, after removal of one, the other tube became the seat of an ectopic gestation, seems to favor this opinion and may be the cause in some instances.

In other instances we find that pelvic inflammation with consecutive adhesions formed a deflection of the tubes. This, I believe, is the cause in most of the cases of extra-uterine gestation. If congenital hyperplasia was the only cause, it would be hard to understand why in many cases ectopic pregnancy occurs after many normal confinements, and why, as in Tait's case, a normal pregnancy was between the two ectopics. Adhesions consecutive to inflammation bring the tubes into angular distortion and constrict the lumen. "Such a lumen," Schröder says,¹ "may have allowed the entrance of the spermatozöon, but is not large enough for the impregnated ovulum." Virchow² has stated that most of the atresia and stenoses are caused by old perisalpingitis. It seems, therefore, that these repeated ectopic pregnancies are caused by either defective development of the tubes or inflammatory processes.

In regard to the relation of the tubal and tubo-uterine or interstitial pregnancy, I think that in my case it was primarily a tubal pregnancy—that is indicated by the seat of the placenta—and later on in course of its development involved the adjoining part of the uterine cavity, taking up as much of the uterine cavity as was necessary. But I do not think that this pregnancy could have gone to term and normal confinement, because the walls, though hypertrophied, were very thin in some places.

The etiology, which shows that the person is always in danger

¹ "Lehrbuch der Geburtshülfe."

² "Ges. Abhandlungen," Frankfurt, 1856.

if the pathological condition is once established, gives, it seems to me, a strict indication as to treatment; for I think, with Frommel, Puech, and Olshausen, that tubal pregnancies have a certain inclination to repeat themselves. Reed¹ advises—and that is the indication—the removal of the other ovary and tube, for the desquamative salpingitis, which is the cause of the extra uterine pregnancy in one, without doubt exists in both tubes. This removal is indicated if there is no doubt about this disease of the other side; but it is not always certain that both tubes are diseased. Besides that, a desquamative process cannot be made responsible for an ectopic pregnancy, for, as Frommel justly states and has proved, in a tube the epithelium of which is gone or diseased an ovum never can find attachment or nourishment and therefore cannot thrive.

Reed had not operated according to his advice in this case, for a reason which he explained in a second and more extensive letter he kindly wrote to me on December 1st, 1892. He says: "I was called to see Mrs. M. by Dr. J. A. Johnston, who informed me that she presented evidences of ectopic pregnancy. I made the section and found the abdomen full of blood. We took out a large number of laminated sacs from the cul-de-sac, and removed the appendages from that side. There was a rent in the tube. There was nothing in particular about the operation beyond that which is peculiar to an ectopic pregnancy. I did not find the fetus, for the evident reason that the rupture had obviously occurred some time before and the fetus had disappeared by maceration.

"The woman was so thoroughly exsanguinated by the operation and by the loss of blood—for I had operated on the heels of a recent hemorrhage—that I made no search whatever for the appendage on the other side, which I believe ought always to be removed when practicable, and when not contra-indicated by an exsanguine condition of patient, whenever an operation is done for an ectopic pregnancy."

The indication is that the tube of the non-affected side should be removed only when diseased; if adhesions or inflammation are noticeable or a corkscrew formation is apparently the cause of the ectopia.

¹ New York Medical Journal, June 6th, 1891.

SARCOMA OF THE UTERUS PREVIOUS TO PUBERTY.

BY

THOMAS C. SMITH, M.D.,

Washington, D. C.

(With one illustration.)

IN the "American System of Gynecology," vol. ii., page 638, Dr. William T. Lusk writes: "No case of uterine sarcoma is known to have occurred previous to puberty." The volume from which the above quotation was taken was published in 1888, but I overlooked the statement of Prof. Lusk until a few months ago, and as I had published such a case in THE AMERICAN JOURNAL OF OBSTETRICS, vol. xvi., Nos. 5 and 6, 1883, it is deemed of sufficient importance to direct attention to my case, which appears to be the only one which has been placed on record.

A brief history of the case as published will serve to elucidate the subject to be herein discussed.

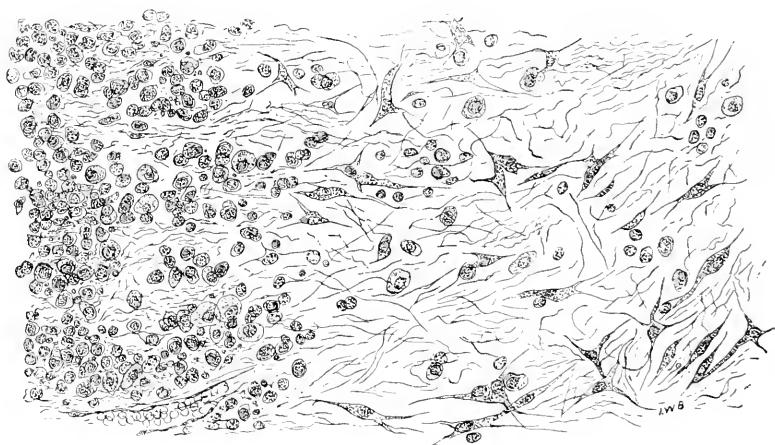
The little girl was 3 years old. At the time of my first visit a tumor, about the size of a chestnut, protruded from the vaginal orifice; under ether this was removed, and others which immediately appeared were likewise treated. With the finger a half-pound of mucous polypi were removed, and were subsequently presented for inspection to the Medical Society of the District of Columbia.

Thirty-three days later the child died, and at the autopsy the uterus was found to be the seat of malignant disease. Four months after removal the uterus and appendages were found to weigh thirty-one ounces. The specimen was referred to the Committee on Microscopy, who reported that it was a "round-celled sarcoma." Reference was made in my paper to the lack of recorded cases of *sarcoma* of the uterus in children, and I thought that the fact of the tumor having been pronounced one of that character would have sufficed to identify it without further description; but as it appears, as above stated, to be the first observed, I have concluded that the truth of history

requires a more elaborate account of the nature of the growth, and this I will proceed to supply.

Dr. George N. Acker, demonstrator of practical histology in the National Medical College in this city, was a member of the Committee on Microscopy in the Medical Society of the District of Columbia, to which this specimen was referred for examination. He prepared a slide showing the nature of the growth, and he recently informed me that it is unquestionably a sarcoma.

From the Surgeon-General's office I have recently been favored with the following communication :



“ Dr. Thomas C. Smith, Washington, D. C. :

“ SIR:—In regard to the specimen of enlarged uterus from a girl 4 years of age, which was presented by you to the A. M. Museum in 1882 (Specimen No. 9104, Pathological Section), I would state that it has recently been re-examined under the microscope and that the re-examination has confirmed the result of the previous examination—viz., that the tumor is a sarcoma.

“ Very respectfully, your obedient servant,

“ ROBERT FLETCHER,

“ Principal Assistant Librarian,

“ Acting Curator, Army Medical Museum.”

At my request a portion of the tumor was submitted for examination to Dr. I. W. Blackburn, pathologist to the Government Hospital for the Insane. He has kindly favored me with

an admirable drawing (which is embodied in this paper) showing the pathological elements entering into the formation of the growth, together with the following report:

"DEAR DR. SMITH:—The portion of the tumor examined shows areas of myxomatous tissue in the midst of the sarcomatous structure which constitutes the main bulk of the growth. The sarcoma is of the small round-celled type, though the cells vary in size and shape, some being spindle shaped. The myxomatous tissue shows stellate, spindle, round, and elongated cells in a fibrillated matrix. Some blood vessels with imperfect walls are seen in all parts of the growth. No normal elements were found in the portion examined.

"Yours truly,

"I. W. BLACKBURN.

"ST. ELIZABETH, D. C."

The foregoing reports, all from competent and authoritative sources, establish beyond cavil that the tumor in the case reported by me was a sarcoma. I believe that other cases will be found of a similar character, and that they will be duly reported in the journals.

While it is true that sarcoma of the uterus is relatively of rare occurrence as compared with carcinoma, it is my belief that some cases designated carcinomata would prove to be sarcomata if submitted to microscopical examination. Further, I am not aware of any reason why sarcoma should not develop in the uterus before puberty.

1133 TWELFTH STREET, N. W.

NOTE ON DRAINAGE AFTER LAPARATOMY.

BY

I. S. STONE, M.D.,
Washington, D. C.

IN view of the disposition of surgeons to substitute an "improved technique" for the stereotyped "flashing and drainage," I have decided to report the following case.

J. R., colored, had been in the hospital for three months with indefinite symptoms of pelvic disease which treatment had failed to relieve until operation was finally done. The patient was in

good condition and the diagnosis made before operation nearly sustained, a cystic ovary being found, and, more than this, double hydrosalpinx. The operation was easily done, with the patient in Trendelenburg's posture, and a sponge was adjusted which caught all free fluid at once. There was no apparent "soiling of the peritoneum," and the patient was assured that she would have an easy recovery. I did not resort to flushing and drainage, because it appeared to be useless. I could think of no possible source of infection save this, and hence attribute her very precarious recovery to this omission. For nearly one week this patient was seriously ill, her bad symptoms commencing at the end of the second day. She undoubtedly had peritonitis, and but for the free use of salines she would have been lost. On the third day the wound was opened and iodoform gauze inserted down to the fundus of the uterus, which gave exit to some serum for a few days, when it was removed. Digitalis, whiskey, strychnia, etc., were given freely, and finally the patient recovered. All this suffering might have been avoided by the use of nearly if not almost *harmless* drainage. We see many cases recover without drainage. We may have a succession of recoveries without drainage, but this case has given me more anxiety because I *did not drain* than all the others in which drainage was used. So far as the question of drainage is concerned, it is impossible to avoid the sensation of having neglected an important duty when such results follow our surgery. So far I have not lost a patient after laparotomy when drainage was not used; but the case reported above, and two others which gave some anxiety, have caused me to urge more care in these cases where we do not suspect danger, and to insist upon the use of drainage in every case where any fluid is found in the appendages. I have not seen any bad results from the use of the drainage tube, although it does not always answer the desired purpose, and I have frequently used the gauze drain with signal advantage.

GLASS TROCARS FOR TAPPING LARGE OVARIAN CYSTS.

BY

HOWARD A. KELLY, M.D.
Baltimore, Md.

(With one illustration.)

No apology need be offered for substituting a cheaper efficient instrument, easily sterilized, for one which is expensive and difficult to sterilize in all its parts.

I have thus had large glass trocars made for evacuating ovarian cysts after opening the abdomen, replacing the various expensive metal trocars now in use.

These trocars are made in two sizes—larger and smaller—respectively one and one and a half centimetres in diameter, each



twenty-four centimetres long (two and a half centimetres = one inch).

The large openings at the sides near the pointed end afford rapid egress to the fluid.

The point of the tube beyond the eye is closed by a glass septum, which obviates the danger of dirt lodging in this dead space.

The discharging end of the trocar has a collar which catches the rubber tube drawn over it to conduct the fluids into the tube at the side of the table. These glass trocars, like my glass female catheters, are easily sterilized in steam or boiling soda solution, and the clean, clear glass embodies the appearance as well as the principle of cleanliness.

IN MEMORIAM.

CHARLES PRATT STRONG, OF BOSTON.

Born December 19th, 1855. Died March 14th, 1893.

THE sudden death of Dr. Charles Pratt Strong, which occurred in Boston on March 14th, robs gynecology of one of its

most active, brilliant, and successful workers. In the brief space of a decade the deceased had acquired an enviable position as a gynecologist in New England, and his short professional career gave every promise of distinguished national reputation.

Dr. Strong was born in the city of Springfield, Mass., in December, 1855. He received his preliminary education at Exeter, was graduated in arts at Harvard in 1876, and in medicine in 1881. At the time of his death he was one of the attending physicians at the Massachusetts General Hospital, surgeon to the



Free Hospital for Women, and instructor in gynecology at the Harvard Medical School. He was one of the youngest members of the American Gynecological Society.

Dr. Strong, whilst not a voluminous writer, had contributed to medical journalism a number of articles bearing on his chosen specialty. He digested well his work before he gave it to the light of day. Conservative, and yet, where need be, aggressive, he had become a *safe* surgeon. The sweetness and geniality of his temperament, added to his sound and scholarly training, gained him hosts of friends and patients. "Those whom the gods love die early," and yet the pity of such brilliant promise nipped in its bud!

E. H. G.

TRANSACTIONS OF THE GYNECOLOGICAL SOCIETY OF CHICAGO.

At the annual meeting of the Gynecological Society of Chicago, held October 28th, 1892, officers were elected for the ensuing year as follows :

President—Dr. E. J. Doering.

First Vice-President—Dr. Ferdinand Henrotin.

Second Vice-President—Dr. Franklin H. Martin.

Secretary—Dr. Henry Parker Newman.

Treasurer—Dr. A. H. Foster.

Editor—Dr. W. S. Christopher.

Stated Meeting, November 18th, 1892.

The President, E. J. DOERING, M.D., in the Chair.

Dr. T. J. WATKINS presented the report of a

CASE OF EXTRA-UTERINE PREGNANCY.

Mrs. Alice S., 29 years of age; married twelve years ago; has one child 11 years of age, and had one miscarriage seven years ago. Three years ago she missed one menstruation and had symptoms which suggested extra-uterine pregnancy. She first menstruated at 13 years of age, and has always been regular with the exception noted above. She menstruated last about June 27th, 1892.

On August 9th I saw the patient in consultation with Dr. George E. Keith. He had been treating her during the summer for the remains of a pelvic inflammation which dated from the probable tubal pregnancy of three years before. On August 2d, a week after she should have menstruated, she was seized with severe pain in the left inguinal region, and two days later passed what she called "clots" of blood, after which she flowed freely.

Physical examination revealed an enlarged, anteflexed uterus with softened cervix, and a soft, fluctuating mass to the left of and posterior to the uterus. The examination confirmed Dr. Keith's diagnosis of left tubal pregnancy.

August 12th the patient was admitted to St. Luke's Hospital for operation.

On August 16th, the day appointed for the operation, the patient was seized at noon with severe pain in the left inguinal

region. At 2 o'clock an abdominal section was made. The abdominal cavity contained about a pint of fresh blood. The left Fallopian tube was enlarged and ruptured, as shown in the specimen here presented. The left broad ligament was distended with old clotted blood. The left Fallopian tube was removed, the pelvic and abdominal cavities carefully cleansed by sponging, the toilet of the peritoneum made, and the wound closed and dressed in the usual manner.

The patient made an uninterrupted recovery. Her temperature did not exceed 100° , and she was discharged from the hospital three weeks later.

Dr. Fred Byron Robinson, at my request, examined the specimen and made the following report :

"The specimen consists of a Fallopian tube and contains the remains of two fetal membranes, viz., chorion and amnion. The wall of the tube is irregularly thinned. At points the light shines through, showing scarcely a vestige of muscle strands, the wall being only thickened peritoneum. The tube has been so stretched that the bundles of muscle fibre have parted at these points. The peritoneum is somewhat thickened over the whole gestation sac, and especially where the muscular layers are absent or extremely thin. Those portions of the villi which remain to form the clinoidal placenta of woman reached nearly around the chorion in this case. At the small part of the circumference, where the chorion was atrophied, the sac burst. This would be the point of greatest distention.

"The chorionic sac (now shrunken by alcohol) measured one and one-half inches in length by one inch in diameter, so that it conformed to the shape of the tube. The amnion was plainly seen inside the chorion, but no fetus was found. Before rupture the chorionic sac probably measured two by one and one-half inches.

"The shrunken chorionic wall measured at its thickest part one-third of an inch. The fimbriated end of the tube was hermetically closed by an inflammatory process. The gestation occurred in the ampulla of the tube. I wish here to note that the muscle bundles of the tube which appeared the most enlarged were the longitudinal; a high-power lens showed this quite plainly. The circular muscles of the tube were also hypertrophied, but not so much as the longitudinal. This hypertrophy of the longitudinal muscles explains the convolution of the tube after childbirth. The longitudinal muscles involute irregularly and so make the tube assume a spiral form. The tubal plicæ showed plainly to the naked eye. They were stretched from one-eighth to one-sixteenth, or less, of an inch apart, and appeared as longitudinal rows on the inner tubal surface. The lens showed that muscular tissue projected into the plical folds. The mucous membrane could be detached from the muscular layer, and it left rows of muscular and connective tissue which

projected into the plical folds. Some of these folds were stretched fully one-eighth of an inch from each other. The visceral surface of the peritoneum was smooth, glistening, and normal. The gestation was of about eight weeks when it ruptured. The fetus was probably lost in washing out the abdomen. The attachment of the chorion was very weak, so that very little force separated large areas from the tubal wall. When the chorion was separated from the tubal wall it appeared rough, like the detached placental membrane of a pig, whose attached placenta is universal."

DR. T. J. WATKINS also exhibited

A CYSTIC TUMOR.

The specimen is about two inches in diameter, has thin, translucent walls, and is filled with clear serum. It is of interest, as it was removed soon after the patient had had a very severe attack of pelvic inflammation. During the attack a tumor was noticed to the left and in front of the uterus, filling the entire inguinal space. A diagnosis was made of pyosalpinx with probable rupture into the surrounding connective tissue. The tumor gradually diminished in size. Upon opening the abdomen this cyst was found completely embedded in adhesions. The topographical anatomy of the pelvic organs was so changed by adhesions that the point of origin of the tumor was uncertain. It probably originated in the left ovary. The right ovary was cystic. The only pus in the pelvis was in a suppurating mesenteric gland. The left tube was prolapsed, drawn to the right side, and adherent to the diseased gland. The chief interest of the specimen lies in the study of the pathology of pelvic inflammation. The condition of the pelvis indicated that the inflammation was non-septic in character. Of late it has been the custom to consider all cases of pelvic inflammation septic. Non-septic inflammation does occur in the thoracic cavity, why should it not occur in the pelvic cavity?

TUBAL CYST.

DR. FRED BYRON ROBINSON.—I have here a specimen which is interesting from several points of view. It is from a woman, 24 years of age, who was sick in bed about eleven weeks, and for the last six weeks pus has been coming through the rectum. Dr. Simons called me to see the case. Dr. Nelson had been previously in consultation and diagnosed it as a pyosalpinx. Dr. Simons thought it was appendicitis. I felt sure it was a tubal trouble on the left side, probably a pyosalpinx, and I was also sure it was of gonorrheal origin. Those cases are very dangerous to operate upon, because you cannot find the opening into the rectum, and nearly all I have seen with a distinct perforation into the rectum have been fatal. We put this case in the hospi-

tal and carefully prepared her so that bile could be seen glistening in the stool. The rectum was washed out and the operation done. I asked Dr. Martin to assist me. We found on the left side a tumor about the size of a man's fist; the uterus was pushed against the pubes and was very small. This cyst was extremely difficult to dig out; finally, just as I got it out of the abdominal wound, it burst, and the stinking pus ran all over the abdomen and inside. After taking it apart the question was whether the tumor was on the sigmoid flexure or on the tube. The tube was about ten inches long, and we both examined it carefully, and, after tracing the adhesions, we found it went into the uterus. The tube had burst into the cyst and was outside; it lay between the tube and the rectum. We could find no hole in the rectum, so we washed it out with probably twelve quarts of water, then put in a glass tube and closed the abdomen with silkworm-gut sutures. The operation was performed twenty-three days ago, and I took the glass tube out ten days ago; up to that time the temperature was 99° to 100° , pulse 102 to 110. She is hungry and appears fairly well. I put a rubber tube in, and there is still a discharge through the abdominal wound; no fecal matter, but a fecal odor. The abdominal aperture is now (twenty-three days after) about closed.

Regarding the diagnosis of this tumor, I think it is an ectopic pregnancy that burst through the tube and also burst into the rectum. The tube looked very much like sigmoid flexure, and was so long that a little piece of the extremity was left in the abdomen. The other tube had nothing particular about it, but I considered it best to take it out, for I am convinced it was a pyosalpinx on both sides, of gonorrheal origin. It is not strange that the woman could be impregnated and have gonorrhea at the same time, because the semen and gonorrhea could be injected at the same time and tubal pregnancy go on. I did not find the gonococcus, but I did not get a good specimen for microscopic examination, and the gonococcus is not easy to find after so long a time. I have noticed that whenever a woman gets infected with gonorrhea the ovaries become cystic a long time after; and I think the explanation is that the home of the gonococcus is the cylindrical epithelium, which extends up into the uterus and the tubes. At the fimbriated end of the tube the cylindrical epithelium ceases, and the covering of the ovary is the germinal epithelium, which is similar to the cylindrical epithelium. The infection goes into the germinal epithelium covering the ovaries, and passes to the membrana granulosa; this is what makes the ovarian follicles enlarge. I think that is the reason of the continual progress of the gonorrhea and cystic degeneration of the ovaries. Gonorrhea does not seem to travel in the peritoneum; the exudates hold it in and stop further progress. In cystic degeneration from gonorrhea the best thing

to do is to remove the ovary. The evidence of ectopic pregnancy is not very great here; it is only probable.

DR. HENRY T. BYFORD.—Were there adhesions of the sound ovary and of the cystic ovary?

DR. FRED BYRON ROBINSON.—Yes, there were adhesions on both sides. The tube on the opposite side from the tumor was not thoroughly sealed, and if squeezed a little yellow, purulent material would run out.

DR. J. H. ETHERIDGE.—I would like to ask the doctor if he ever found cystic ovaries in animals.

DR. FRED BYRON ROBINSON.—Yes, I have found them scores of times in cats and pigs—in the pig often as big as a bunch of grapes or a fist. The pig and cow have the most cystic ovaries. I have never found many in the dog. I do not think the infection is of one kind, but the prominent infection is gonorrhea, and animals have gonorrhea; for example, every once in a while a stallion goes to mares and gives them gonorrhea. I was talking to some of the professors at the veterinary college the other day, and they say that gonorrhea is common in stallions. Infection is also very common in pigs. In the examination of a couple of hundred sows there will be found retained placentæ and bones that have possibly been there many months, and their ovaries are sometimes infected and pus found there. It is certain that infection is not by one thing, but animals such as the pig and the cow have wonderfully cystic ovaries, and I think it is proven that animals have gonorrhea.

DR. H. P. NEWMAN.—I would ask Dr. Robinson if he believes that deaths occur in animals directly from these pathologically cystic ovaries.

DR. FRED BYRON ROBINSON.—I do not think that death very frequently occurs, but they are like women. I have a case now where there is a big cyst in the ovary, which enlarges, breaks and runs away in the abdominal cavity, then returns. I believe that animals die from this cause, because you will often find the pelvis of the pig and the cow full of inflammation. I found in animals cysts similar to those that occur in women. I have found pus sacs and fistulæ in the bowels.

DR. HENRY T. BYFORD.—As I understand modern pathology, we cannot have inflammation and adhesions of the ovaries without infection. Of course gonorrheal infection is only one kind. It seems to me that would settle the whole matter. I hardly think the doctor is justified in calling this abscess an ectopic pregnancy. Extra-uterine pregnancies are getting to be very numerous, but they are hardly as numerous yet as abscesses, and abscesses from extra-uterine are not as numerous as the other kind. My experience has been that such abscesses, occurring in the position the doctor speaks of, are abscesses of the ovary. I have seen them in process of formation; the tube is

usually enlarged, as in this case, because it has been subjected to purulent inflammation. The fimbriated end has in this case become obstructed, proving that there had been inflammation. What is the reason for supposing that this is an extra-uterine pregnancy?

DR. FRANKLIN H. MARTIN reported a

LAPARATOMY FOR REMOVAL OF LARGE FIBROID.

The specimen which I bring for your inspection this evening has been of great interest to me for three principal reasons.

First. Because of the more than average size of the tumor for the length of time of its development.

Second. Because of the unusual difficulty of removal, owing to the peculiar method of its development.

Third. Because of the unavoidable severing of the right ureter.

Mrs. B., a native of Canada, age 47, the mother of a child 7 years of age, was referred to me about two weeks ago by Dr. Sanger Brown for operation for a large abdominal tumor. There was no history of hemorrhages. Judging from the age of the child and other things, the tumor was of recent development, and its growth had been unusually rapid for a fibroid tumor.

Upon physical examination the tumor was found extending nearly to the breast bone, and to the ribs laterally. It was soft, but no distinct sense of fluctuation could be elicited. On vaginal examination no cervix could be felt, although it was located high in front above the symphysis.

A large, spherical mass filled the pelvis behind and spread out the posterior wall of the vagina. While no distinct fluctuation could be felt, from the softness and elasticity of the tumor I hoped against hope that it might prove, on operating, to be a large growth of small, closely crowded multiple cysts.

After the usual preparations I performed a laparotomy at the Woman's Hospital, assisted by Dr. Bacon and the house staff, November 10th. The anesthetic was ether. The abdomen was opened first by a small incision immediately above the umbilicus. The incision was made high in order to avoid the bladder, which I had reason to think was attached to the tumor. The tumor was soon discovered to be a fibroid. The incision was lengthened enough to admit the hand. On exploration with the hand no abdominal adhesions were discoverable, although the bladder was firmly attached high up on the anterior wall of the tumor near to the umbilicus. It was decided to remove the tumor. The incision was quickly extended above and below, and the tumor rolled out. The lower portion of it had formed attachments to the intestines in several places. These were separated, and the upper portion of the long wound was drawn over a large flat sponge and securely closed by catch forceps. Instead of the tumor having developed as usual from the body of the uterus

upward into the abdomen, it had developed from the lower segment and had elevated the fundus with the appendages nearly to the ensiform cartilage. The broad ligaments, therefore, especially on the right side (the uterus having been carried to the left of the centre), were completely obliterated. They were tensely stretched out over the sides of the tumor and occupied several inches in breadth. It was necessary in ligating them to place the ligatures, and, after securing the tumor side by catch forceps, to cut the broad ligament and relieve the tension before the ligature could be tightened and secured. In this precarious way it was necessary to treat by sections each broad ligament until the base had been reached. While severing in this manner the right broad ligament a distance of eight inches from the brim of the pelvis, I was startled by a spurting of clear fluid from the portion of the broad ligament severed. I labelled it with a pair of forceps in order to refer to it later, and proceeded with the removal of the tumor. The bladder, with great difficulty, was dissected off the front of the growth, but not without wounding its peritoneal coat. This was repaired by a Lembert suture. A half-inch rubber tube was thrown around the pedicle, which was now reduced to about two and a half inches in diameter, tightened, tied, secured with pedicle pins, and the tumor cut away. A small Mikulicz drain was put in over the bladder, the pedicle secured in the lower angle of the abdominal wound in the usual way, and a glass drain placed in the abdominal cavity above the pedicle. The operation having already occupied from 2:30 o'clock until 6, the assistants began flushing the abdominal cavity, while I turned my attention to the suspected tissue in the labelled forceps. I was soon convinced that I had severed that dread affair, the ureter. I placed it in the abdominal incision about three inches above the pedicle, leaving about one inch of it protruding, and then secured it. The abdominal wound was now closed, dressed, and the ureter surrounded with a loose drain of iodoform gauze. The patient was now, after a four hours' operation, put to bed. She reacted nicely. The right kidney secretes, apparently, its full share of urine, as demonstrated by the saturated gauze dressings, which are changed every hour. The glass drain was removed the second day. The patient's temperature has been but once or twice a trifle over 100°. Yesterday the abdominal stitches were removed. While the patient has at times exhibited considerable weakness, she shows every indication of recovering. The weight of the tumor was twenty pounds.

DR. FRED BYRON ROBINSON.—I was present at this operation, and think it was the most difficult one I ever saw. The tumor was enormous, the incision was very high, and Dr. Martin worked hard to get the tumor out of the abdomen at all, and when it was out the development of the tumor was the great difficulty; it was attached up as high as the umbilicus. For-

tunately there were no intestinal adhesions. He began to ligate on each side, and when he came down to the bladder its top seemed to be attached to the omentum and the tumor also, and as it was torn away considerable bleeding occurred, but was soon controlled by a number of forceps. Then the difficulty was to ligate down on the stretched ligament and get the tumor out from the lateral walls of the pelvis under the ureters. He pulled the ureter out on the abdomen, and it has since been trickling to a considerable extent. Twenty-five days after the operation the patient is doing nicely.

One point I would mention is, what to do with the ureters in these cases? Why could he not, as the abdomen was open, have cut a hole in the gut and pushed the ureter in and let it trickle through? I tried that on dogs, and every time a fecal fistula occurred and killed the dog. The persistent peristaltic motion of the intestine seemed to lead the infection up through the small gut, and it killed the dog. The next thing is to put it in the rectum, and after this I will try it in that way. Dr. Read, of Mansfield, Ohio, has tried putting the ureter in the rectum a number of times, and, while he has had a good many deaths, some of them got better. I think if we put the ureter in the rectum the patient will get well as a general thing. The question in this case is, what to do with this ureter; shall it be allowed to run over her abdomen all her life? I think he could tie the ureter as it is, outside, and the kidney, after secreting itself full, would atrophy from blood pressure. Probably the doctor would not think that safe, but in my opinion many a ureter is tied in laparotomy and nothing known about it. Then he could extirpate the kidney. A tied ureter will allow urine to secrete until it rises up to blood pressure, then the secretion will cease and pressure atrophy arise (if not infected). From my experiments on dogs, in trying to put the cut ureter in the *small* intestine, I feel sure it is too fatal. But now I shall try the experiment of directing the cut ureter in the *colon*. It has but little peristalsis.

DR. HENRY T. BYFORD.—I do not think I ever saw a tumor harder to get out of its bed. The only way the operation could have been more difficult would have been to have visceral adhesions requiring a long time to separate and ligate them, and that would probably have killed the patient. I think it required a good deal of courage to undertake the operation, and it required a good deal of endurance to go through with it; but the doctor plodded away and finally got the tumor out in good shape. I think he is to be congratulated and complimented.

DR. T. J. WATKINS.—I know of a case in which one ureter has been discharging through the abdominal wall for about four years, and the patient does not experience much inconvenience. She keeps the surface about the opening protected by zinc oxide ointment, and wears absorbent pads.

An instrument might be devised to collect the urine and transmit it to a bag attached to the patient's leg. I would not advise a second laparotomy to turn the ureter into the gut, on account of the risk of the operation, and because of the irritation which the urine would occasion in the gut, and the possibility of phosphatic deposits therein.

DR. CARL BECK.—Dr. Rydygier has made experiments by sewing both ends of the ureter into the abdominal wound; if they did not reach he left a part of the skin between the two ureteral openings, afterward doing a plastic operation, and, closing the groove, formed a new ureter. He did that in a number of cases which were described last year in the *Oest. Centralblatt für medicinische Wissenschaft*, but I have heard nothing about it since.

DR. J. B. BACON.—In having the ureter open into the rectum, as far as I know the experiments have all been done in animals. This has been quite successfully done by Dr. Read, of Mansfield, Ohio. I think it is Dr. Martin's idea now, as soon as the woman recovers sufficiently to stand another operation, to put this ureter into the rectum.

DR. CARL BECK read a paper entitled

ECTOPIC PREGNANCY TWICE IN THE SAME PATIENT.¹

DR. FRED BYRON ROBINSON.—It seems to me this is a pregnancy in the horn of the uterus. The great landmark between the tube and the uterus is the round ligament; he does not say anything about that. The drawing and the doctor's description would indicate simply a pregnancy in that side of the uterus in which he found it—a dilated horn possibly, or the uterus leaning to that side and that part thinned out. If a person examines a number of pregnant women he will occasionally find that the uterus is very thin, and after it has gone a few months he can strike on the abdomen and the child will go down and pop up again, similar to ballottement. The uterine wall will feel very thin.

I think Dr. Byford made a very good criticism on the specimen I presented when he said there was not enough evidence of ectopic pregnancy. That is all right. I do not know, but merely thought it probable that it was, and I think Dr. Beck's is a very probable case of pregnancy in the horn of the uterus, and not in the tube.

DR. J. H. ETHERIDGE.—Did I understand the doctor to say he used drainage at the time of operation?

DR. CARL BECK.—I used a small strip of sterilized gauze, which I passed into the lower angle of the wound, but removed it the second day. The gauze was left above the sutures of the uterus, so that, in case one of the sutures should give and the

¹ See original article, p. 570.

uterus remain open, there would be drainage by the gauze outwardly. The pregnancy was advanced something over three months. The placenta was simply a thickening of the membranes, but I could feel where it was.

DR. J. H. ETHERIDGE.—I would ask the doctor why he did not open through the old cicatrix, instead of making a second wound and in that way doubling the chances of ventral hernia?

DR. CARL BECK.—I opened next to the cicatrix because I did not know whether there was an adhesion of the omentum and gut in the cicatrix, into which I might have cut.

DR. FERDINAND HENROTIN.—What does Dr. Reed say about the first operation?

DR. CARL BECK.—He writes: "Have you recently done a section for ectopic pregnancy in a patient upon whom I had previously operated for the same trouble?" This shows clearly that it was an ectopic pregnancy in the first case. This illustration was made in a hurry and the measurements are not exact, but at the operation measurements were made, and the tube was not half the length of a normal tube. I know the walls are very thin in some cases, but this was surely not the uterine wall. I think the symptoms are clear enough to show that it was a pregnancy between the uterus and the tube, which is called tubo-uterine or interstitial pregnancy. At first I thought myself it was a uterine pregnancy. I tried to find the uterus below, and I found the tumor became very solid down in the small pelvis. The pregnancy was only something over three months, and during the following development I do not believe the uterus would have given, but the tubal wall, which is so very thin, would have burst.

DR. FRED BYRON ROBINSON.—I recall a pregnancy where the baby, which was about 4 months old, was between the layers of the uterus.

DR. CARL BECK.—That is the real interstitial pregnancy. This pathological subject is not fully cleared up, and in the text books no exact difference is made between real interstitial pregnancy and tubo-uterine pregnancy.

Stated Meeting, December 16th, 1892.

A REPORT OF THE EXAMINATION OF SPECIMENS FOR DR. FRANKLIN H. MARTIN.

DR. FRED BYRON ROBINSON.—One specimen is a sausage-shaped Fallopian tube containing about two tablespoonfuls of thick yellow pus. It is sacculated, contorted, and convoluted; some of the partitions separating the sacculations project a considerable distance into the tubal lumen. The mucous membrane is almost totally destroyed. The fimbriated end is closed by

peritoneal adhesion, and the fimbriæ can be seen lying neatly in order inside the tubal lumen. The inflammation at the abdominal ostium contracted the peritoneum and closed the tubal lumen from the abdominal cavity; hence in this tube the comparative freedom of considerable adhesions at its fimbriated end. The muscular wall of the tube is almost crushed out of existence, and in its place is found hard, white, shiny connective tissue, which is at the isthmus fully a quarter of an inch thick. This connective tissue extends over the whole muscular region of the tube, but in several places it is quite thin and only the peritoneum is left to protect the tubal contents. The peritoneum covering the tube is considerably thickened, but does not show much surface inflammation; however, some adhesive bands exist, especially toward the isthmus. The tube was no doubt rapidly closed at an early date by the peritoneal exudate and adhesions hermetically sealing its abdominal ostium and completely pushing its many infected fimbriæ back into the tubal lumen, effectually checking further infective processes. Hence, as the infection was mainly cooped up in this tubal lumen, the smooth, dilated, sausage shaped tube swung comparatively free in the pelvis. With a kind of fateful certainty, the tube could hardly close its abdominal mouth without infecting the ovary; and that part of the ovary nearest to the abdominal ostium is the most extensively diseased. The Graafian follicles were largest near the point of infection and smallest at the most distant point. The follicle was filled with a cheesy, friable substance, which, after standing in alcohol, hardened and could be entirely enucleated from the cavity. The Graafian follicles looked like empty segments of spheres when cut into. It appears from the method of closure of this tube that the amount or vitality of infection which passed into the ovary was limited, as this special ovary showed a very considerably less advanced pathological process than the tube belonging to it. But the ovary was infected secondarily and was fast on the road to cystic degeneration, though at the examination it was entirely free from the tube. The other tube and ovary were in a similar pathological condition, but of a much more dangerous character. The mucous membrane was almost totally destroyed. The muscular wall was almost entirely replaced by hard connective tissue, and the peritoneum covering the tube was much thickened. But the interest in this specimen lies in the unfortunate method of closure of the ampullar end. As the inflammatory process proceeded in the abdominal ostium the peritoneal adhesions began to contract down on the straggling fimbriæ; but all of the fimbriæ were not fortunate enough to be forced in the tubal lumen, and some were caught in the closing peritoneal adhesions and remained in the peritoneal cavity. These strangulated infected fimbriæ soon badly infected the ovary, which degenerated into large, thin-walled, multiple cysts. This was really the dangerous factor,

the rapidly advancing infectious process not only endangering the rupture of the large pyosalpinx, but also the large cystically degenerated ovary. The infection entered the germinal epithelium of the ovary (which is glandular and cylindrical), and then passed on into the membrana granulosa (which is cylindrical and glandular), where it caused cysts to arise.

The infectious process could be distinctly traced from the imperfectly closed Fallopian tube directly into the diseased ovary. This is one of the most typical examples to show that the ovary is secondarily diseased from the tube, and the whole pathology shows that it is one continuous, progressive infectious process. It is a sample of that wonderfully active infection, and almost always progressive disease, known as gonorrhea, which covers most of the incurable troubles of the uterine appendages. The greatest and most progressive step in gynecology was the conception and removal of diseased uterine appendages, the main credit of which must be given to Mr. Lawson Tait.

DR. FRED BYRON ROBINSON presented a specimen showing that

GONORRHEAL INFECTION WILL FINALLY PRODUCE OVARIAN
ABSCCESS.

The specimen I show you I removed from a woman of 27. She had been married seven years to a man whom several physicians had treated for gonorrhea. She now has four living children, but during the past two years has suffered from several abortions, after which she was very ill. She was under my care in the hospital for two weeks, and during the first ten days she improved so well that I doubted the propriety of removing the appendages.

A recurrent pelvic inflammation finally induced me to suggest an operation. A recurrent pelvic inflammatory attack is a very good symptom that the appendages are severely diseased. The appendages were removed, and while examining them the ovary was found to contain over a teaspoonful of yellow pus. This shows how gonorrhea will act. Her husband had infected her; the gonorrhea had caused endometritis, which caused abortions, then endosalpingitis and infection of the ovary, producing cystic degeneration. Though the ovary was free and smooth on the outside, it contained pus. This is a typical sample to show that the ovaries become secondarily diseased from the tube. The course of gonorrhea in woman is mainly through cylindrical epithelium. First it infects the urethra and vulvo-vaginal gland. 2. The endometrium suffers, as it has cylindrical epithelium. 3. The same remarks apply to the cylindrical epithelium of the endosalpinx. 4. The germinal epithelium (cylindrical) of the ovary is infected, and, 5, the gonorrheal infection spreads into the membrana granulosa (cylindrical epithelia), and ovarian cysts.

tie degeneration occurs. It may require years to produce pus in an ovary from gonorrhea.

DR. FRED BYRON ROBINSON presented a specimen of

LARGE OVARIAN CYST

to illustrate the effects of continued pressure on the abdominal brain (solar plexus).

I removed this tumor from a woman 48 years of age. The tumor had grown for several years, but her attention was not called to it especially until some ten months ago, when it began to swell quite rapidly.

Examination three weeks ago revealed a large, fluctuating cyst with hard, suspicious nodules on the upper part of the tumor. She menstruated regularly, and the uterus received the sound over three inches.

Operation at the Woman's Hospital seventeen days ago, assisted by Dr. Mary Shibly and Dr. White, showed the tumor to be a multiple ovarian cyst, in which there were a few quite large cysts filled with fluid, while a considerable number were filled with a yellow matter which was so compact as to make the cysts feel like solid tumors. The adhesions were broken up, and the whole tumor removed by ligating its own ovarian ligament. Now, it did not seem possible that such an ovary could ovulate at all, but the woman was menstruating. I carefully searched for the other ovary, and it was found to be a small, shrunken piece of cicatricial tissue about the size of a small hazelnut. It seemed that ovulation and menstruation must be clearly separate in this woman.

The main point I wish to call attention to in this case is her disturbed visceral organs. Dr. F. J. Percy, of Galesburg, Ill., sent this patient to me, and he called attention to disturbances which he designated as neurotic symptoms. I watched the patient, and found that the viscera badly disturbed in rhythm were: (a) the heart, (b) the lungs, (c) the liver, and (d) the digestive tract. The heart suffers from any pressure that may continually exert its influence on the abdominal brain. For about a year this tumor had pressed on the abdominal brain, and the reflex had been sent up the splanchnics to the cervical ganglia, and the irritation was there reorganized and sent down to the heart. The result was that such continual irritation had caused cardiac hypertrophy and also irregular action of the heart.

The rhythm of the lungs was very frequently broken and disturbed by the irregular reflexes. The liver was disturbed in its rhythm by the same continued irritation reflected from the abdominal brain over the hepatic plexus, destroying the delicate rhythm of what I have called the automatic hepatic plexus. When the rhythm of the liver is disturbed the liver functions suffer. The business of the liver is to make bile, glycogen, and

urea. In this case the irritation flashing out from the abdominal brain, due to pressure, might induce the automatic hepatic plexus to make (*a*) too much secretion or (*b*) too little secretion, or (*c*), which is the most important, the reflected irritation on the hepatic plexus would likely cause disproportionate liver secretions. This patient showed these progressive disturbances. The irritation produced on the abdominal brain by the tumor caused a disturbed rhythm in the digestive tract. Here the two automatic ganglia disturbed were those of Meissner and Auerbach. This means that the irritation sent out from the abdominal brain was flashed to the digestive tract over the gastric plexus, superior mesenteric plexus, and inferior mesenteric plexuses. The result is disturbed (*a*) motion, (*b*) sensation, and (*c*) secretion. Motion and sensation of the digestive tract were not particularly marked, but the main disturbance lay in digestive secretions, which may be (*a*) too much, (*b*) too little, or (*c*) disproportionate. In her case too little secretion occurred (constipation). But, to be short, the great principle which this large tumor teaches is that its pressure created reflex irritation, which was reorganized in the abdominal brain, reflected to all the viscera, disturbing their rhythm. She is now well, seventeen days after the operation.

DR. C. W. EARLE.—In your studies of gonorrheal affections, the results of which you are presenting to-night, have you come to any conclusions that will give us light in regard to what we call gonorrheal rheumatism? Suppose a person has a peculiar form of rheumatism, long, continuous, and apparently incurable, either man or woman, and we trace back and find they have had gonorrhea; have you arrived at any conclusions that will help us out in the pathology? I ask this because during the last year I have seen two or three cases of rheumatism which have preceded and given rise to ankylosis, producing chronic invalidism. I was in hopes you had found something that would give relief.

DR. FRED BYRON ROBINSON.—So far as I have seen, they generally have only one joint affected, and that is usually the knee. In males it is not very uncommon to find rheumatism of the knee after gonorrhea of the mucous membrane of the urethra. There is another point: you often find in women who have had gonorrhea that the appendages are surrounded by an exudate, and that presses on the nerves of the hip and knee joint, and these joints are often stiff.

DR. F. H. MARTIN.—You state that in this case one ovary was practically not infected. If not infected would we be justified in leaving it?

DR. FRED BYRON ROBINSON.—No, sir; they are always infected enough so that there will eventually be septic degeneration.

DR. H. T. BYFORD.—I think one reason why we do not have

gonorrheal rheumatism in these cases is that the pus is encysted. I think in quite a proportion of these cases we do not find any gonococci in the tubes, although the trouble may have come from gonorrhea. In regard to hydrosalpinx, it seems to me the explanation is a little different from that given by Dr. Robinson. I think the closure of the tube has nothing to do with the condition of the peritoneum outside; we know that the peritoneal covering of the tube and the circular muscular fibres stop at a certain point of the mucous membrane, beyond which extend the fimbriae. The swelling causes the elastic tissues to extend in all directions. Gradually the muscular and peritoneal coats extend over the ends of the fimbriae, and of course they are covered the same as if drawn. Thus the tube may be closed without the peritoneum having a drop of pus on it. In case the pus comes out an exudate is formed, and this process of slipping over cannot readily occur. It is possible, of course, for a drop or two of pus to get into the peritoneum and leave no sign, because the peritoneum is to a slight extent proof against gonorrhea. I think that accounts for the way in which the other ovary was affected, although it could have been infected through the lymphatics, which are quite open along the mesosalpinx and extend straight along the blood vessels to the ovary. Either that, or it is proof that gonorrheal pus did not affect the peritoneum very much; in other words, the adhesions have been absorbed.

DR. F. HENROTIN.—I cannot help putting in a positive denial of the impossibility of curing gonorrheal infection of the tubes, and peritonitis resulting therefrom, and particularly so this evening, because the last patient I saw on my way here was a woman with a history of infection like this: A year and a half ago her husband came to me with an acute discharge of gonorrhea and told me he was afraid he might have infected his wife, as before the discharge appeared, after suspicious intercourse, he cohabited with his wife.

Within two days after seeing him I was called to see this woman, who had every sign of acute gonorrhea, vulvitis, inflammation of the vaginal glands, which gradually extended to the endometrium and produced the typical symptoms of gonorrhea. She was seriously ill, and in bed four months with tenderness and adherent organs, so much so that I gave her most discouraging prognosis for the future. That woman went South, travelled around, stayed a long time in Tennessee, and came back looking pretty well. I did not have occasion to examine her until two or three months ago, when, to my surprise, I found she had not the least indication of any disease. Her uterus was apparently free, except a slight sclerosis, a hardening of the body of the uterus itself. This was one of the most striking cases I ever saw. It was typical from the very day the husband infected her, and, clinically speaking, nothing could be more perfect; and yet that woman

is practically well to-day. So I feel like protesting against the statement being made so emphatic as to say that there is no other cure except to take away the organs.

DR. H. T. BYFORD.—I want to say that I have seen cases of gonorrheal salpingitis get well. I have now a case in which there was undoubted infection on the husband's part, communicated by him to the wife; there was salpingitis and endometritis; and yet within three weeks from the time I was called to see her she came down to the office, and I found no enlargement of the tube and no sign of peritonitis—the uterus perfectly movable. I think there are many cases of acute salpingitis that get well.

DR. H. P. NEWMAN.—In this connection I wish to speak of a case of salpingitis where the evidence of infection was well marked, and which was treated for gonorrhea by a well-known physician of this city for several months prior to the operation. She suffered intensely and was addicted to the use of morphine. At the time I saw her in consultation she had a large, distended tube, and operation was advised and performed, removing the large pus tube and ovary on the affected side. Contrary to usual instructions, I spared the appendages of the opposite side, as they gave no evidence of being diseased. This woman made a good recovery, abstained from the use of morphine from that time, became healthy and strong, married, and has since had one child—a living argument for the conservative surgery which was used in this case. The operation was done two and a half years ago.

Inasmuch as we are advised to remove both ovaries in cases of gonorrheal infection, and there was positive evidence of such infection in this case, I wish to cite it as illustrating the fact that the more conservative method is advisable in some instances.

DR. FRED BYRON ROBINSON.—This subject has interested me for six or seven years, and I have watched it carefully. Medicine is not as scientific as astronomy or mathematics, and never will be; men will never get down to the bottom of life. When I find the tubes inflamed and know it is of gonorrheal origin, I have yet to know a woman to get well. They get better, but they have a recurrence. Therefore if I find the appendages of a woman diseased, and that woman has had gonorrhea, I tell her she will be better off without her tubes, but I do not tell her she will die. Relative to making a diagnosis of a tube, a few weeks ago I was called upon to make a post-mortem on a woman who had been chopping wood at 6 o'clock and at 11 was dead; they thought the doctor killed her with morphia. I opened the abdomen, and the tube was normal in all appearances outside; but I saw dropping from it a few drops of yellow pus, and in the pelvic peritoneum, ascending up to the lumbar region, it was as red as sunset. This infection had existed a long time without killing her; but the last straw was this tube which had been leaking for a week or two and simply shocked her to death by the last large leakage.

DR. FRANKLIN H. MARTIN read a paper on

VAGINAL LIGATION OF A PORTION OF THE BROAD LIGAMENTS FOR
UTERINE TUMORS OR HEMORRHAGE.¹

DR. FRED BYRON ROBINSON said: The idea of tying the uterine artery is six or eight years old. I used to hear of it when I was in Martin's clinics in Berlin in 1885, but I have never known it done for fibroid tumors, and, so far as I know, Dr. Martin's execution is entirely original.

Relative to tying off both the ovarian and uterine arteries, that would certainly produce necrosis, and I hope the doctor will not try it until he first does it on animals a few times, because the artery from the vagina going up to the uterus will not nourish it. If he ties off both the uterine and ovarian arteries the woman will have necrosis and gangrene. I watched the doctor tie off one-half of a side of the uterus, and I was much pleased with his method of doing it. He cuts crosswise on the vagina, antero-posterior, then separates with his fingers and puts on the ligature. The moment the ligature was put around I could see that the cervix began to pale.

Another thing must be looked to or one of her kidneys will be of no use, and that is tying the ureter. It goes within half an inch of the cervix there, and the doctor shoved it up with his finger—a thing every operator would not think of doing when he put the curved needle around the uterine artery. In gynecology there are a great many ureters tied that are never heard of.

I think the utility of Dr. Martin's operation will depend on the state of atrophy of the mucous membrane of the uterus. If that atrophies it will be all right, but it will probably produce sterility. I have hope for the utility of the operation, and shall do it on a patient I have under observation, if this case proves to be a success in a month or six weeks more. I opened the abdomen of my patient and found the pelvis full of a solid material with a fibroid sticking in the middle of it, and could not remove it. It was all I could do to put three ligatures around each tube, ligating off the ovarian artery on each side. Now if it continues to bleed I can ligate one uterine artery and see if that will do good; it will stop the reflex bleeding for a while, at least. I have already ligated both tubes and hence both ovarian arteries. Now I would not dare to ligate more than one uterine artery, for fear of gangrene or necrosis.

DR. H. T. BYFORD.—There is not much more to be said, except that this should be considered as a palliative operation. I think there is no reason to suspect that ligation of both uterine arteries would cause necrosis. Even in the case of Dr. Etheridge this necrosis did not necessarily occur from ligature, because the tumors projecting into the cavity of the uterus often undergo

¹ See original article, p. 481.

partial necrosis anyhow. One of the chief things that prevent it from being a radical operation is that you can only tie the uterine artery from below for tumors that are above; tumors developed in the cervix and broad ligament below will distort the parts so that you cannot always get at the arteries as you would like; you cannot pull the uterus down, and cannot tell where the ureter is. Of course collateral circulation will become established after a while. What makes it a successful operation is that fibroid tumors only want a little assistance and they will get along very well. To diminish the vascularity even temporarily is often enough to stop the growth.

In regard to this operation for other conditions, I think it should be done with circumspection. It seems to me that to cut off the blood supply from the cervix would take away a certain portion of its vitality and render it more liable to take on cancerous conditions. It has been proposed, in operating for lacerated cervix, to go high up where the uterine artery is distributed and sew it up, and thus diminish the nutrition of the part and help involution. It seems to me for minor purposes it is not right to deprive the tissues of a part of their vitality. We know that even a generally depraved condition of the system will predispose to disease and septic inflammation.

DR. H. P. NEWMAN.—It would seem as if the profession was not a unit in regard to the major blood supply of the uterus. We have Tait's theory of the extirpation of the ovaries and tubes as doing away with the menstrual functions; we have also what has long been before the obstetrical branch of the profession—compression of the aorta for checking post-partum hemorrhage. In one case the ovarian artery is checked in its blood supply, in the other the uterine; and Dr. Martin presents an operation for permanently checking the blood supply from the uterine artery. I would take exception to the anatomy presented, particularly as to the distribution of the ovarian artery. The doctor's drawing gives a branch to the fundus and a branch to the side of the uterus. I think anatomists at the present day give as characteristics of the ovarian artery a breaking up near the angle of the uterus into twelve to eighteen branches, which are distributed to the uterus, the tubes, and ovaries. I also notice that the drawing where the wound is sewed up shows only a lateral incision. Would it not improve the technique to make an anterior and posterior incision, with the view of increasing the field of operation, and lessening the danger of entering the peritoneum or tying the ureters?

Dr. Byford's criticism in regard to the predisposition to disease by interference with the nutrition and functional activity of the cervix I think is well timed, as the operation will be done in cases where there is already structural tissue change and diseased conditions that may take on a malignant character. I object to its being called a minor operation when there is danger of tying the

ureters. This accident has occurred with some frequency of late, and its liability would be much increased were the operation under discussion to become general.

DR. H. P. MERRIMAN.—It seems to me we cannot give too much praise to Dr. Martin for this operation. It was conceived upon thoroughly scientific principles, and carried out with a great deal of skill. I am glad that the question has come up as to its priority, and that statements have been made showing that where the artery has been tied it was not for the same purpose as in this case, and with not so much of the broad ligament. Now, as to the effect of the operation, I cannot look upon it, as many of the speakers have done, as a merely palliative treatment. It seems to me it promises more than that. In some cases it will be only palliative, but it seems to me that in many cases it is going to be completely curative. We know that fibroid tumors do not always continue to grow; that sometimes they disappear after the change of life, when there is less activity of the circulation in the pelvis and less nervous disturbance. In these cases of Dr. Martin we are going to have a decided check to the circulation and a decided diminution in the nervous activity of the parts, because he includes in this ligature the nerves that stimulate the uterus, as well as the uterine artery. We know, also, that in cases where operations have been performed abdominally and the ovarian artery has been tied, although there is only a partial check of the circulation, the trouble has been cured in many instances. This operation of Dr. Martin in my judgment promises far better results than anything yet proposed for the cure of fibroid tumors, except the complete extirpation of the uterus.

DR. F. HENROTIN.—I think that any operation that attains the same result per vaginam is very much to be encouraged and is preferable; the mutilation is less, and, generally speaking, the dangers are less. There are some drawbacks, it seems to me, to the technique of the operation that make it desirable that more work should be done outside of the results already obtained. First, there is great danger of tying off the ureter, and this danger will be greater if the operation becomes common. I may not be very skilful, but I think in some cases it would be difficult to shove away the ureter; and I do not know how it is always to be recognized, particularly in a case where we have fibroid and other growths destroying and changing the anatomy of the parts. One part of the technique of the operation I do not exactly understand is where the doctor peels off the broad ligament from the bladder. It is sometimes a difficult matter to push the finger up there; we do not know how much space there may be; we may get between the bladder and the uterus, and shove into the peritoneal cavity, and it is difficult to tell how much attachment is there. However, I do not believe the danger is very great, even if the peritoneal cavity itself happens to be opened per vaginam, provided everything is aseptic. One of

the greatest difficulties of the technique is the location of the broad ligaments. We know that in growths and abnormal conditions we have difficulty sometimes in isolating and properly separating the broad ligament; we know it runs up on the sides of the tumor, and it would probably be difficult to reach, even with a long finger, the ovarian artery. Then there is the difficulty of avoiding the ureter. Second, the difficulty of separating properly the peritoneal surface from the contents of the broad ligament, which is only slight in most cases, containing vessels not very broad or very tangible. Third, the liability to break into the abdominal cavity. Fourth, the possible displaced location of the broad ligaments. These factors may prove drawbacks to the operation in the future. However, as the doctor has done this operation in two cases, it will be interesting to note results, and I should be very glad to encourage him in following out these cases.

DR. FRANKLIN H. MARTIN, in closing the discussion, said: Dr. Etheridge makes the point that great difficulty might be experienced in separating the peritoneal coat of the broad ligament. In some cases I can imagine that it would be very difficult, but in the majority of cases I do not believe it is so. The broad ligament is simply a fold of peritoneum under which, passing from the uterus to the pelvis, are vessels, nerves, lymphatics, and connective tissue. From below, from the vagina, one can easily separate the peritoneum, both anteriorly and posteriorly, if he is careful. Of course it is very thin; I could feel that I was in close proximity to the Douglas cul-de-sac; but it separated without difficulty, so that in the last case I easily hooked my under finger over the ovarian artery, and could have ligated it with almost the same ease as the other. In other words, the peritoneum is loosely connected over the broad ligament, especially at its base. The advantages of this operation over an abdominal operation are that, where an operation is performed involving the opening of the peritoneal cavity, we have a feeling that we are doing a major operation, and we are; although this cavity is opened with great impunity at present, under such circumstances that if we do good work we will have no bad results, but if there is the slightest slip our patient will die from acute sepsis or something else. In this operation we do not open the peritoneum, or we seek not to; if we should do it, no great harm would result, because we should be just as careful in antiseptic details as if we went in from above. A beginner in gynecological work choosing one of these operations I believe would be in less danger, unless he got into the peritoneal cavity, by tying the broad ligament from below than from above. Another reason why this is superior to ligating the broad ligament from above is that it is very difficult to ligate the uterine artery from above. I believe it is very much easier to go from below and

ligate the ovarian artery than to go from above and ligate the uterine artery.

Dr. Robinson speaks of reflexes giving rise to uterine hemorrhages. Now, the nerves between the uterus and the medulla oblongata must of necessity pass through the broad ligament, and for that very reason I ligate as much of the broad ligament as possible so as to interfere with reflexes. Dr. Byford made the well-known point that these tumors often improve as a result of shock. If you give them electricity or ergot they get well, or from simply cutting open the abdomen they often get well. Here I not only cut off the blood supply and destroy reflexes, but give the shock also. The point was made that this operation would produce sterility. The operation is proposed for a very grave matter, for fibroid tumors, in which cases we now recommend opening the abdomen and removing the ovaries and even the tumor. We tell our patients that removal of the ovaries is a minor operation, that they will get well in all probability, and it will do them a great deal of good. The question of sterility might come up there, but if the woman has a fibroid tumor it is to her interest to be sterile. Where this operation is done for fibroid tumors, by cutting off the circulation there may be sterility, but I do not think that ought to have a feather's weight in deciding for or against the operation. Dr. Byford also speaks of the operation as being particularly effective for tumors lying low in the uterus, but thinks it would not be indicated to such an extent for tumors high in the uterus, because the uterine artery supplies the lower portion of the uterus. While the uterine artery enters the uterus low down by means of the curling anterior branches of the uterine artery, the entire uterus to within an inch of its fundus is supplied by the uterine artery. We do not know whether anastomosis may occur here, so as to make it ineffectual, or not, but there is against it the fact that this artery takes so much pains, by means of these transverse arteries, to supply all sections of the uterus. Every portion of the uterus has its own circular arteries supplied by the uterine arteries, which by this operation will be cut off. Of course a subperitoneal tumor starting from the fundus might not be nourished by this artery, but by the ovarian artery. In that case, if I found I did not have good results by ligating the uterine artery, the next time I would tie one ovarian artery. Reducing the vitality of the cervix was a question I was glad to have come up. If the vitality is decreased very much by cutting off the circulation, possibly that would be a point of value; but inasmuch as one of the objections to the operation is the fact that collateral circulation may be established too quickly makes a reasonable doubt. Dr. Newman speaks of the distribution of the ovarian artery. I have not made dissections in this work, but from the best authorities I could reach I find the largest branch of the ovarian artery passes to the fundus, another

branch passes down and anastomoses with the uterine artery, and another in a circumflex way passes back into the tube and nourishes it. There is this to say in regard to the circulation of these arteries: all books claim that they are liable to deviate, liable to have numerous branches, and no great dependence can be put upon the artery supplying any particular area; but in ligating the broad ligament I certainly would include all the branches. Dr. Newman's objection to this being called a minor operation is well taken. The operation is only minor, as I have explained, in that it does not go into the peritoneal cavity, and when performed by one who has done a number of vaginal hysterectomies. To call it a minor operation in point of difficulty is not true. There is danger of wounding the bladder, great danger, unless the operation is done exactly right; there is great danger of wounding or tying the ureters, unless the operation is done perfectly; and unless great care is used we will get into the peritoneal cavity. If this operation should become popular I would not care to have it considered a minor operation, as beginners would be careless in their preparations, and it would soon become a major operation from the disastrous results that would follow. In regard to the avoidance of danger to the bladder, after making the incision through the vaginal vault I place my finger in front of the broad ligament and separate both ways, separating the broad ligament from the bladder until I can feel the peritoneum, just as is done in vaginal hysterectomy. I separate the bladder well around to the side of the pelvis until I can feel that I am pushing the tissues connected with the bladder against the sides of the pelvis. Dr. Henrotin spoke of the distortion caused by these tumors. Where one is dealing with abdominal surgery, or surgery of any kind, he must know his anatomy and then take his chances. If the parts are distorted, that surely must be taken into consideration. I can imagine a case where it would be impossible to ligate the broad ligament; but the case would have to be an unusual one in which the uterine artery could not be reached from below, and such a case, of course, would be one in which the operation would be of no benefit. Such cases would prove exceptions, however.

DR. H. T. BYFORD.—I want to give a piece of information to complete the discussion. Three or four years ago Kelly wrote an article which had something to do with the technique of an operation for ligating the broad ligaments, which he described in detail. He ligated the ovarian arteries, and also the uterine arteries, from above for checking these hemorrhages. This article appeared in *THE AMERICAN JOURNAL OF OBSTETRICS*. Dr. Martin's operation is new in that it is done from the other direction.

TRANSACTIONS OF THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, February 23d, 1893.

H. J. BOLDT, M.D., *Chairman.*

RUPTURED TUBAL PREGNANCY; COLLAPSE; SUCCESSFUL LAPARATOMY.

DR. CHARLES E. NAMMACK presented the specimen, which was removed February 15th from a woman who had had two previous pregnancies, the birth of the first child in 1885 being followed by a pelvic abscess. The second child was born in January, 1890. In 1892 she had an abortion at about the sixth month, followed by mild peritonitis. January 28th, 1893, in the sixth week of her fourth pregnancy, she was seized with severe abdominal pain and vomiting, associated with distention of the colon. The symptoms subsided under an opiate, and were thought by two physicians to be due to intestinal colic. February 13th violent pain and vomiting again developed, along with a sero-sanguinolent discharge from the uterus and the passage of a fragment of decidua. The uterus was felt to be somewhat enlarged, and at its left there was a swelling. February 14th symptoms of internal hemorrhage developed, and a gynecologist wished to remove her to a hospital for laparotomy. She recovered from partial collapse, but at 2 A.M. symptoms of collapse again appeared, and another gynecologist who was called in consultation thought it unsafe to operate at her home and suggested that she go to a hospital. Consent was not given, and two hours later Dr. Lange was called and operated at her home. The left Fallopian tube was found ruptured, the ovum free in the abdominal cavity. The patient was doing well.

Dr. Nammack said the case seemed to emphasize two points: 1. That intrapelvic suppurative inflammation paved the way for subsequent tubal pregnancy. 2. That laparotomy could be successfully performed in the poorest quarter of the town if the operator and his instruments were absolutely clean.

THE CHAIRMAN was reminded of a case of ruptured tubal pregnancy, the patient in collapse, pulse imperceptible, so that it was regarded as unwise to remove her and operate, yet without operative interference she made an uneventful recovery. The case taught him that the patient's chances of recovery

might be better if she were let alone than if she were operated upon under bad surroundings.

DR. EGBERT H. GRANDIN reported

TWO CASES OF SYMPHYSIOTOMY.

In the first there was a generally contracted pelvis, the head could not engage, the fetal heart was rapid and irregular, and an operation was called for in order to avoid stillbirth. Judicious traction with the forceps soon convinced him that he could not get a live child in that way, so he proceeded to do symphysiotomy; and even then, with a separation of two inches and a half, he had some difficulty in extracting the child with forceps. The second case occurred a few days later in a patient of undersize with an infantile pelvis. The operation here was elective, and undertaken when the cervix was three-quarters dilated and dilatable, version being resorted to after dividing the symphysis. The child and mother lived. The separation in this case was about two inches. In both he cut from above downward, from without inward, but used the hooked knife in dividing the subpubic ligament, which he did from behind forward and upward. The head of the first child was harder than usual, the posterior fontanelle closed, the anterior small.

A point of interest in the second case was his inability to induce labor by introducing glycerin, which he did on two different occasions, introducing about four ounces each time, while the hips were elevated. The fluid ran out without producing pains, although on one occasion such free transudation was induced that the nurse was misled to think the membranes had ruptured.

DR. JAMES E. KELLY, by invitation, spoke of the surgical points connected with symphysiotomy, and expressed decided preference for cutting from above downward and from without inward; for, in his opinion, to follow the Italian method and cut from below upward and from within outward was decidedly unsurgical. He understood that Dr. Grandin had carried his incision down to one side of the clitoris, which he disapproved of, for some hemorrhage might take place owing to the erectile character of the artery. The median line was practically bloodless. The infrapubic ligament was the only ligament of importance. Where this had not been divided, and delivery was still effected, he believed rupture of the ligament had taken place without knowledge of the obstetrician. All the diameters were increased by separation of the symphysis, but the increase antero-posteriorly would be just as much if the separation were only two inches as if it were four inches. In a normal pelvis, where the increase in the oblique diameter was one inch, that of the transverse diameter would be about three-quarters of an inch and of the antero-posterior about three-eighths of an inch.

DR. EDGAR asked Dr. Grandin how far he had introduced the catheter for the introduction of glycerin in his case, and what was the month of gestation.

DR. GRANDIN replied, four inches, and that nine was the month of gestation.

DR. EDGAR then said that for the successful induction of labor with glycerin two essentials were demanded—first, the glycerin must be introduced far enough; and, secondly, it must be kept there by the posture of the woman. According to the doctor's statement neither of these requirements had been observed, and yet from failure in one case he condemns a method reported as eminently successful by obstetricians in Europe, England, and this country. The injection of glycerin four inches within the cervix, or about one-third the distance to the fundus, will in many cases no more effect uterine contractions than a single vaginal douche would. We will fail in some instances to introduce the catheter far enough, in like manner as we sometimes are unable to pass up the bougie. The speaker recently saw a case where another operator had failed to pass the glycerin high enough, and found it impossible to introduce either catheter or bougie more than a few inches, as the membranes were apparently adherent, the woman having still five or six weeks to go to term.

PATIENT WITH DOUBLE UTERUS.

DR. GEORGE M. EDEBOHLS prefaced the history of a patient whom he presented with the statement that about two months ago he had occasion to show a woman with a double uterus, the interest in the case centring in the fact that several operations were performed at one sitting. 1. Nephrorrhaphy for wandering kidney. 2. Curettement of the uterus; and during this procedure it was discovered that the uterus was double, so that both cavities were curetted and washed out separately. 3. The uterus was ventrally fixated. The patient made an uninterrupted recovery and had since been well.

Last week he had encountered another case of double uterus very similar to the first one, but the true condition was strongly suspected before the operative procedure, and was confirmed during the latter. The patient, aged 26, married, normal menstruation, healthy, had given birth to one child, August, 1892. She began to menstruate again in January, 1893, and aborted February 12th, the ovum, however, corresponding in size to about the tenth week. Mild septic symptoms followed. Six days after the abortion she came under his treatment. Before proceeding to do curettement he made bimanual palpation and felt a round-like body seven centimetres in diameter, apparently a tumor attached to the uterus; but on closer analysis he suspected it was an extra-uterine pregnancy and that the abor-

tion had been of an intra-uterine pregnancy. . But on putting the curette into the uterus the true diagnosis soon became apparent, for the instrument, when directed toward the left horn, entered twelve centimetres and a half, and then, being drawn out about five centimetres and reinserted toward the right, it entered nearly twelve centimetres. Between the two uteri was a ridge running antero-posteriorly, projecting downward from the fundus a distance of two inches, or five centimetres. The placenta, which remained, was mostly in the left uterus, but projected slightly into the right, the latter being elongated, the former round. He washed out the two cavities separately and inserted gauze.

It would have been very easy for one to mistake such a case for a tubal pregnancy, and even to be misled into operating.

PREGNANCY IN UTERUS ADHERENT TO ABDOMINAL WALL.

DR. J. CLIFTON EDGAR presented a patient, who was examined by several members of the Section, and who had the following history:

On January 13th, 1891, the patient was attended by a midwife in a difficult breech delivery, for which a physician was called in in order to extract a still-born child.

Three days afterward chills, followed by fever, diarrhea, and pains over the uterus, set in, and on the sixth day of the puerperium she was seen by the speaker. In spite of a thorough curetting and uterine irrigation, temperature remained above 100° F., and upon the twelfth day of the puerperium a sensitive mass could be made out in the right broad ligament, which being taken for a pyosalpinx, and there being then signs of commencing general peritonitis, the patient was sent to Bellevue Hospital, where Dr. Polk did celiotomy, irrigating and packing with iodoform gauze the pelvic cavity. The condition found upon celiotomy was one of puerperal lymphangitis, and the enlargement in the right broad ligament was made up of swollen lymphatics and was not a pus tube. Patient made a good recovery, and was again seen by the speaker July 6th, 1892, in her third pregnancy, she being then in her ninth month. On examination at this time an adhesion could be made out between the lower part of the anterior uterine and abdominal walls. The shoulder presented, which was converted manually into vertex and thus maintained by a binder, and patient told to send immediately upon onset of labor pains. Next seen July 13th, 1892, in first stage of labor; severe uterine contractions present every few minutes; os partially dilated and on level with brim and pointing into left iliac fossa; position, L. Scap. P.; membranes ruptured, labor having continued twelve hours. In order to reach the cervix it was necessary to pass the whole hand into the vagina. Fetal heart had not been heard during the first stage. The fetus was so bent upon itself, by an apparent sep-

tum dividing the lower part of the uterus in the median line, that the head was in the left iliac fossa and the lower extremities in the right, with the body much higher than either. Direct podalic version in the tetanically contracted uterus with thinned lower segment was tried, but, danger of uterine rupture being imminent, the side of the head was held over the cervix, perforated, and extraction accomplished very slowly by the cranio-clast. The uterus, as examined by members of the Obstetric Section, was found markedly anteverted, with its posterior surface near the left horn, firmly adherent to the incision in the anterior abdominal wall.

PELVIC INFLAMMATION FOLLOWING THE PUERPERAL STATE.

DR. H. T. HANKS read the paper, which, he said, would touch upon only some of the points of this vast subject. The difference between pelvic conditions not due to the puerperal state and those which were of this origin was to be accounted for largely by the channel of infection. In puerperal peritonitis it was generally through the lymphatics, occasionally the veins. That lack of cleanliness was the usual way of bringing the septic material to the woman was shown by the fact that of recent times in institutions very few cases developed compared with the pre-aseptic period. Still, septicemia in more or less pronounced form was present in six per cent or more of the maternity cases. Even milder forms must be fought against if one would avoid the occurrence now and then of overwhelming septicemia. An increased pulse and some fever were frequently present even in model lying-in institutions, and nineteen times out of twenty could be safely attributed to sepsis. While the principal source of infection was from without, still it was possible to meet with auto-infection.

Since the antiseptic era a marked change had taken place in the treatment. Where lacerations and abrasions existed the author recommended their repair, and if sepsis had already occurred they should be cleansed and cauterized. Septic endometritis was a common form of puerperal fever. The cavity should be irrigated with an antiseptic fluid, every shred of membrane should be removed, and it should again be irrigated. If the pulse and temperature still continued high the irrigation should be repeated. If the patient were profoundly septic, and the uterus lay at the pelvic floor, pack it with iodoform gauze or plain gauze. This could be done much more easily than one without experience might suppose. He had been able to save some of the most desperate cases by this plan. The patients should receive easily digestible food and stimulants. Where the sepsis extended further, it could not be said, whatever the primary entrance might be, that its progress was always up the tube. A phlegmon might develop in or under the broad ligament, within the peritoneum or outside of it; might project

toward Poupart's ligament, upward into the peritoneal cavity, or downward toward the vagina. The treatment then became one of incision, cleansing, and drainage. The incision might be above Poupart's ligament, or by way of the vagina, or abdominal section might be called for. The greatest danger was in those cases where the abscess was intraperitoneal, its rupture involving the peritoneum in general septic inflammation. The differential diagnosis between these and the cases outside of the peritoneum with a thick wall protecting the latter, could be made by rectal examination under anesthesia. Cases of puerperal pyosalpinx were not so common as one might suppose, but the tubes undoubtedly were the offending bodies in some cases. If so, the abdomen should be opened.

In general, the treatment advocated where there was pus was incision by opening the abdomen or otherwise. A few illustrative cases were related. But where there was no indication of pus, mild fever, the pulse good, we might expect to cure a large percentage of the cases by judicious treatment without operation. Absolute cleanliness, rectal irrigation or saline laxatives, codeia if required, stimulants, tonics, abundant easily assimilated food, would lead to a cure of the vast majority of cases of puerperal fever.

DR. R. A. MURRAY impressed the importance of differentiating between puerperal mortality and puerperal morbidity. One might go through a large series of cases of mild puerperal fever and not lose a case; but extreme care was called for in all instances, lest he infect some patient and get up a fatal form of the disease. Nor should we congratulate ourselves on having done our best for our patients, unless they were left as well as they were before they became pregnant. He thought the author had well said that all lesions occurring during labor should be repaired immediately afterward. By doing this we could save our patients a great deal of future trouble—if not sepsis, at least scar tissue, subinvolution, displacement, etc. There was reason to believe many cases of labor in private practice were not treated by far as aseptically as in hospitals, which was very wrong.

DR. CHARLES JEWETT also believed the doctor should leave his patient as well as she was when she went to bed before labor. Where septicemia developed he was, in the great majority of cases, the carrier of the poison. The site of infection in nearly all cases was, according to Dr. Jewett's belief, the interior of the uterus. It had been assumed that the odor of the discharge could be taken as indication of the septic or non-septic condition of the uterus. He was convinced this was not always the case for he had known the uterine discharges to be odorless when they came from the seat of septic material. He was satisfied that no method was, as a rule, equal to curettement of the uterus, douching, and packing with iodoform gauze. He usually also pu

some iodoform above the gauze. Frequent douching was objectionable. He believed in peroxide of hydrogen as more efficacious than weak dilutions of bichloride, etc.

DR. W. E. FOREST warmly indorsed peroxide of hydrogen. He knew one midwife to have three fatal cases of puerperal septicemia, which probably was not an unusual experience for those people.

DR. A. F. CURRIER recognized that after labor at term, just as after abortion, some cases of sepsis were mild, some severe, some inevitably fatal. For the inexperienced he thought it would be safer to rely on drainage of the uterus without curettement than with curettement, as the latter involved danger if carelessly performed. In general purulent puerperal peritonitis the patient stood little chance of recovery after operation, and to interfere was likely to bring discredit upon surgery.

DR. VINEBERG said that in most cases of labor there was more or less laceration of the cervix, and he objected to the advice that repair be always immediately done. This would be meddlesome midwifery. He would advise immediate repair only in bad lacerations.

DR. W. GILL WYLIE said that while the subject was somewhat out of his line, yet it was of special interest to him, as his experience began with the treatment of puerperal sepsis. He then advocated frequent intra-uterine douching, and his results were extremely favorable compared with those previously obtained under the same circumstances. He was satisfied that was a step in the right direction, and that it was still a good practice when properly carried out. As to the cause of puerperal fever, it had always seemed to him that there must be different kinds of poison, but he thought that which was dangerous to life in the puerperal state almost always started in the uterus. When sepsis took place from an open wound it was most likely to be where there was least drainage. While auto-infection might be possible, he thought the true source was almost invariably by introduction from without. By special attention to cleanliness it was possible, he thought, to practise fifteen or twenty years and not lose a case from abortion or labor. In puerperal fever not due to a collection of pus, and which did not yield to ordinary methods, he believed washing out the uterus every hour for twenty-four or forty-eight hours with simple hot water, peroxide of hydrogen, or weak solution of carbolic acid would save nine out of ten cases, if not ninety-nine out of a hundred. He had never lost a case which came under his care early. But if washing out the uterus failed, and there were indications of peritonitis, he would open the belly at once.

DR. EGBERT H. GRANDIN said it had not been his intention to discuss the paper, but the remarks of the last speaker had rubbed him the wrong way. He had stated that he was out of obstetrics, and if he was going to teach men to wash out the uterus

every hour or every two hours in order to cure puerperal septicemia, Dr. G. hoped he would stay out. It seemed to him like trying to put out a fire by sprinkling on water with an atomizer. The water only came in contact with the surface of mucous membrane, while the germs were at work below or in the tubes and peritoneal cavity. If sepsis was in the uterus it should be attacked radically from the start. Curette it down to the muscularis with the sharp curette, wash out the cavity with bichloride or peroxide of hydrogen, pack with gauze, thus draining and preventing the entrance of more septic material. If the sepsis had entered through a wound elsewhere, or any place except through the uterus, what service was there in washing out the uterus? The temperature could be brought down to better advantage by the coil on the abdomen. As a result of washing out the uterus several times a day, he was called to a case of bichloride poisoning, the strength having been 1:8000. He found an abscess which had opened into the bladder, but he opened it above Poupart's ligament and the woman got well.

DR. WYLIE said he believed also in emptying the uterus, curetting it, but sometimes it was impossible to do this thoroughly without too great danger of puncturing the uterus, which might be very soft. Frequent washing would at least weaken the sepsis, and he believed the fluid penetrated a little beyond the surface. If there was danger of poisoning, use only pure water.

DR. MALCOLM McLEAN thought the important lesson to be drawn from the discussion by the general practitioner was that by strict cleanliness he could reduce the number of his cases of puerperal fever at least forty per cent.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Stated Meeting, December 4th, 1892.

The President, J. WATT BLACK, M.D., in the Chair.

The following specimens were shown: DR. HANDFIELD JONES: Calcification of fibroid. DR. LEITH NAPIER: (a) Fibromyoma undergoing degeneration; (b) Several gynecological instruments. DR. WHEATON: (a) Bony parts removed from dermoïd tumor; (b) Bilateral cephalhematoma.

A paper by DR. HERMAN on

THE FREQUENCY OF THE LOCAL SYMPTOMS ASSOCIATED WITH
BACKWARD DISPLACEMENTS OF THE UTERUS

was then read. This paper is based on an analysis of four hundred and seven cases of backward displacement of the uterus.

The author finds that *chronic pain* of some kind is present in nine-tenths of cases of backward displacement of the uterus. The most frequent seat of pain is the back, generally the sacral region. Next most often come sensations of descent and unilateral pains, mostly in the ovarian region, cases of left-sided pain outnumbering those of right-sided pain in the proportion of three to one. In a small proportion lower abdominal pain is the chief complaint, and in a very small minority trouble in locomotion is the prominent symptom.

Pain in defecation is present in less than half the cases. In the majority of the cases in which it is present it is accounted for either by constipation or by morbid conditions of the rectum. The author estimates the proportion of cases of backward displacement of the uterus, in which the displacement is the sole cause that defecation is painful, at about one in nine.

Backward displacement of the uterus has no appreciable effect as a cause of *painful micturition*; but *bladder irritation* due solely to the displacement is present in about one case in five.

Leucorrhœa is not commoner in cases of backward displacement of the uterus than among other patients.

Dyspareunia is present in at least one-sixth and probably in a larger number; absent in at least one-seventh.

DR. HANDFIELD JONES pointed out that the author, while tracing the connection of pain at various points with backward displacement of the uterus, had made no reference to the condition of the misplaced organ; for in some cases it caused no symptoms, while when inflamed and acutely tender it did give rise to great suffering during defecation or coitus. Sometimes the ovaries were also prolapsed, enlarged, and tender, and were the real cause of the pain complained of.

DR. CHAMPNEYS agreed that the explanation of the frequency of left-sided pain was that that side was the "weaker." That this was not due to pelvic causes was proved by the frequency of other left-sided pains, and especially left submammary pain. Pain in the bowels was generally due to intestinal causes. The unimpregnated uterus could not conceivably exert any injurious pressure on either the bowel or bladder. Its weight out of the body was about an ounce, and, as about half this was lost by the pressure of the surrounding soft parts, it could only exert a downward pressure of some half-ounce. The only other theory of pressure was that due to impaction. The conjugate of the pelvis was about four inches; the extreme length of the uterus not more than three; if flexed, still less, so that impaction was impossible. The immediate effect of bearing down was not to increase but to diminish retroversion and flexion, the centre of the pelvic diaphragm descending more than the sides. Generally speaking, backward displacements were signs of descent.

He was rather surprised to hear that catarrh was not common among patients with backward displacements. In his experience the association was very common, and both were signs of absence of tone in the pelvic soft parts. He had seen two cases a little while ago which illustrated this association. Two ladies from India had catarrh and descent with retroversion. After the application of two zinc-alum points, without rest in bed and without a pessary, the uterus had climbed up into its place and the backward displacement had gone. With respect to dyspareunia, this was a wide term and there were at least two principal forms: one in which the pain was associated with spasm of the vaginal orifice, and the other due to deep tenderness, generally from some inflammation about the ovary or tube. In such a case there was often tenderness on pressing the uterus, which was not really tender, but pressed against the adjacent tender organ. It was often described as tenderness of the uterus, but incorrectly.

DR. GERVIS did not agree with the opinion that backward displacement of the uterus was but a stage of prolapse, although unquestionably retroflexion without descent was of far less importance than when it occurred with it. Speaking generally, he thought that flexions, if uncomplicated, were of but moderate importance, but if associated with cervical stenosis or endometritis they become of considerable importance. He further believed that in many of the cases where there was associated ovarian pain the pain was due to a subovaritis whose starting point was endometritis, and that this endometritis was in its turn due to the interference with normal menstruation induced by the flexion.

DR. HERMAN (in reply) said that in his opinion uncomplicated retroversion or flexion of the uterus caused no symptoms of any kind. Had the cases on which the paper was based not been complicated they would not have applied for treatment. Some years ago it was believed by many that every complication that existed along with a displaced uterus was the consequence of the displacement. Some had gone to the opposite extreme and regarded backward displacement of the uterus as being always a bagatelle and the presence of symptoms with it merely a coincidence. He had compiled this paper to help himself to a correct idea of the frequency with which backward displacement was really the cause of symptoms existing along with it. It was not possible to settle the question by reporting individual cases, because the interpretation of individual cases depended on the general principles previously adopted by the observer, which he could not prevent from biasing his judgment. Therefore he (Dr. Herman) had adopted the statistical method set forth in his paper. He did not accept the views put forth by Dr. Gervis, and for two reasons. First, if retention of menses was produced by flexion of the uterus, how was it that no one had ever yet pro-

duced a uterus dilated by the retained fluid? Second, if displacement backward caused the ovaries to be tender by producing salpingitis and oöphoritis, how was it that (as the displacement was not unilateral) this state of things was produced three times as often on the left side as on the right?

DR. CULLINGWORTH next communicated a

NOTE SUPPLEMENTARY TO A PAPER READ BEFORE THE SOCIETY,
APRIL 2D, 1890, ON VAGINAL HYSTERECTOMY, GIVING THE
SUBSEQUENT HISTORY OF THE CASES.

The subsequent history of the three patients whose cases were given in the author's paper on "Vaginal Hysterectomy," read April 2d, 1890, and who survived the operation, is here given. Of these, one lived for two years and two months, one for a few days short of two years, and the third for a little over seventeen months. Two enjoyed perfect health until within a few weeks of their death. In each of these cases death resulted from intestinal obstruction, the cause of which in one case remains unknown; in the other it was pelvic adhesions, the only signs of recurrence being a single enlarged gland and a small ulcer in the vaginal roof. In the third case the history showed restoration to fairly good health for six or eight months, then gradual failure for twelve months, and, finally, six months of absolute confinement to bed, death occurring from kidney disease, due apparently to implication of the bladder and ureters in the recurrent growth. The patients with columnar-celled carcinoma lived longer than the one in whom the disease was of the squamous-celled variety.

DR. PLAYFAIR said, in his opinion, the whole subject of the surgical treatment of uterine cancer was still *sub judice*, and neither total extirpation nor supravaginal amputation could be considered, so far as our present experience went, as anything but very unsatisfactory procedures, affording the patient the chance of prolonging her life in comfort for a greater or less length of time, but which, so far as existing evidence went to show, did not give a reasonable hope of complete cure. The important point to settle is which of these procedures affords the patient the best chance for the future. He had operated in a large number of cases by supravaginal amputation, but sooner or later the disease had recurred in all. Nor is the immediate danger altogether a negligible quantity; he did not know of any reliable statistics on this point, but he observed that in a recent paper read at the Gynecological Society, advocating this procedure, death had followed in two out of twenty-four cases (about eight per cent), which represents an initial mortality but little less than that of total extirpation. He thought it must be admitted that if from improved technique the mortality of total extirpation could be shown to be not materially greater

than that of supravaginal amputation, it must be considered the most surgically correct and hopeful procedure. No surgeon in his senses would remove part of a cancerous organ if he could remove the whole of it without much more danger. So far as recent statistics went, the tendency seemed to show that total extirpation, unsatisfactory though it was, would come more and more into favor. It had been argued by Dr. John Williams and others that in epithelial cancer of the cervix the tendency of the disease was to spread laterally on to the vaginal walls and not upward into the uterus, and that we might, therefore, rely safely on supravaginal amputation. This had always seemed to him (Dr. Playfair) a dangerous doctrine, and in the uterus now shown, which he had removed by total extirpation, the disease was apparently limited to the cervical portion so far as naked-eye appearances went; yet in the section shown under the microscope, taken from near the fundus and right away from the apparently diseased textures, there were marked evidences of malignant infiltration. Similar specimens had been shown by Olshausen and others, so that the theory that "the epithelial variety of cancer can be safely considered to be limited to the cervix" seems untenable.

DR. LEWERS said that a conclusion as to whether vaginal hysterectomy or supravaginal amputation of the cervix was the better operation could only be arrived at by comparing the results, both as to mortality and recurrence, obtained by these operations in a large number of cases. He did not think Dr. Cullingworth's cases were at all encouraging to those who were the advocates of vaginal hysterectomy; on the contrary, these cases made it evident there was an appreciable risk of intestinal obstruction as a remote consequence of the operation. Referring to his own cases, he had nineteen cases of supravaginal amputation without a death, and six of these were free from recurrence for two years and upward after the operation. As regards the body of the uterus being involved in some cases, as mentioned by Dr. Playfair, the point was that generally when there was extension to the body of the uterus there was also infiltration of the tissue round the cervix, making these cases unsuitable for either operation. He thought that, exceptionally, vaginal hysterectomy was required for cancer of the cervix, and he had shown a specimen in point recently.

DR. HEYWOOD SMITH considered that the result in Dr. Cullingworth's cases told more in favor of supravaginal amputation of the cervix, as two of the deaths were due to obstruction due to adhesion of the bowel to the pelvic wound. He suggested the advisability of drawing down the wounded edges into the vagina so as to present a smooth surface on the peritoneal aspect. It seemed to him that, except in cases of primary cancer of the fundus uteri, the supravaginal amputation held out the best prospect of success at rather less risk to the patient.

Dr. GERVIS thought Dr. Playfair took a too gloomy view of the prognosis in cases of supravaginal amputation of the cervix, especially where the operation was undertaken for an epithelioma springing from the vaginal aspect of the cervix, or which, commencing in the cervical canal, had spread laterally rather than upward.

Dr. WILLIAM DUNCAN pointed out that at the present moment there are no statistics showing the mortality in a large series of cases in which vaginal extirpation and supravaginal amputation for cancer had been respectively performed in this country, and that therefore we were not in a position to dogmatize on the subject. The best series of vaginal extirpations he knew of was that of Prof. Sinclair, of Manchester, whose mortality was certainly as small as that of supravaginal amputation when performed by the most skilful operators. He must confess to a change of opinion with regard to the two operations to that he expressed in a paper on "Extirpation of the Uterus," read before the Obstetrical Society in 1885, and he thought that now, as the mortality of the two operations can be reduced to almost (if not quite) the same level, total extirpation was the more scientific and more surgical procedure, even though it were the more difficult to perform.

Dr. CULLINGWORTH, in reply, said he saw no reason to modify the opinion he expressed in the discussion on his hysterectomy paper as to the respective merits of supravaginal amputation and total extirpation. He thought Dr. Playfair's specimen a very striking illustration of the risk run by those who practised the minor operation of leaving behind an unsuspected focus of cancer in the uterus. The fact of even the occasional occurrence of concomitant disease in the body of the uterus furnished a strong argument in favor of the removal of the whole organ, even when the cervix alone appeared to be affected. Dr. Lewers' great success in the partial operation naturally made him strongly advocate it; but the number of those who agreed with him was steadily diminishing, and he (Dr. Cullingworth) had little doubt that total extirpation would come to be recognized as the more satisfactory method of dealing with the majority of those cases in which a radical operation of any kind was permissible.

ABSTRACTS.

1. LEOPOLD: MYOMOTOMIES AFTER THE INTRAPERITONEAL METHOD (*Archiv für Gynäkologie*, Bd. xliii., Heft 1).—The excellent results obtained by Brennecke, Chrobak, Zweifel, and Kocher by the intraperitoneal method, and the objections to the extraperitoneal treatment of the stump (protracted closing of

the wound and the liability to abdominal hernia), incited the author to the performance of a number of operations in which the pedicle was deposited within the peritoneal cavity. Eleven cases were thus treated, and the operations were successful in every case in spite of many difficulties encountered. The tumors were all very large, often filling completely the pelvic cavity, and the ligation of the deep-seated uterine stump sometimes was a serious impediment. Many authors have published full reports of myotomies after the intraperitoneal method, yet we believe that a description of the methods employed by Leopold will not be devoid of interest.

Trendelenburg's position is of decided advantage, preventing the prolapse of the intestines and leaving the field of operation unobstructed. Thoroughly disinfecting the abdominal walls, vagina, and cervix, the vagina is tamponed with iodoform gauze.

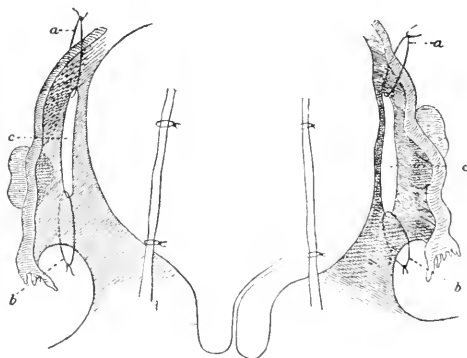


FIG. 1.

The abdominal incision should be of ample length to permit the withdrawal of the tumor; after that the wound is closed by provisional ligatures. Carefully determining the boundaries of the bladder and the broad ligaments, the bladder, if drawn up by the tumor, must first be separated. Unfolding the broad ligaments, an aneurism needle, armed with a long, double silk thread, is pushed through the thinnest part of the ligament, then, withdrawing the needle and dividing the ligatures, they are securely tied above and below (Fig. 1, *a b*). The now freed ovaries and tubes are removed by the Paquelin caутery. In a similar manner the round ligaments are treated.

While an assistant holds the tumor in a vertical position, the cervix is constricted by a rubber tube as low down as possible. This rubber tube must be stretched to its utmost capacity before placing it around the pedicle, then considerable pressure is exerted even after the stump is much diminished in size. It is important to bear this point in mind, otherwise the operation

may be complicated by considerable hemorrhage. Securing the elastic ligature by double knots, which are strengthened by sewing them together, the peritoneum is divided through an encircling cut about six centimetres above the rubber tubing (Fig. 2, *ss*).

The divided serous covering is carefully dissected from the tumor down to the rubber tube, always working in the subserous connective tissue (Fig. 3, *sl*, *s l*). The possibility of the bladder being enclosed within the grasp of the rubber tube must be borne in mind. In some cases this cannot be avoided; then the bladder must now be separated together with the reflected peritoneum.

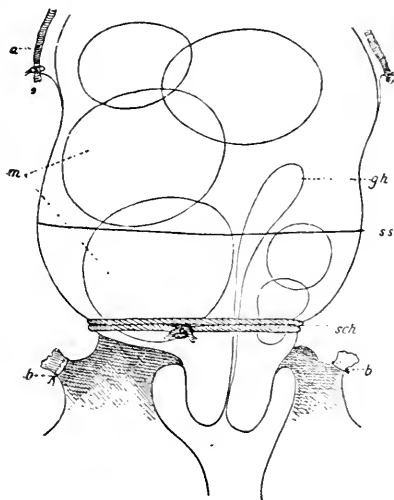


FIG. 2.

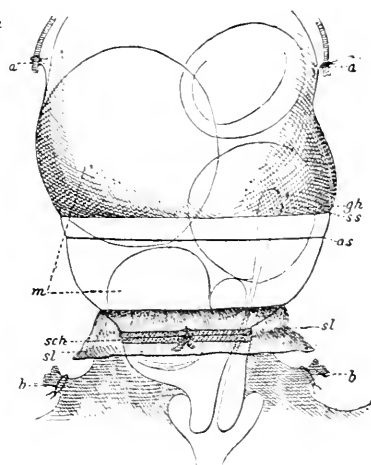


FIG. 3.

FIG. 2.—*aa*, ligated Fallopian tubes; *bb*, ligated broad ligaments; *sch*, rubber tube; *mm*, myomata partly enclosed by the rubber tube; *ss*, line at which the peritoneum is to be divided; *gh*, uterine cavity.

FIG. 3.—*aa*, ligated Fallopian tubes; *bb*, ligated broad ligaments; *ss*, line at which the peritoneum has been divided; *sl*, dissected-off peritoneum; *sch*, rubber tube; *as*, line at which the tumor should be amputated; *gh*, uterine cavity; *m*, myomata partly enclosed by the rubber tube.

Amputating the tumor some distance above the constricting rubber band (Fig. 3, *as*), and securing the separated peritoneal flaps with artery clamps, is the next step of the operation. The remaining individual fibroma nodules are seized with Muzeux forceps and enucleated until the remaining stump is materially reduced in size and the cervical canal is surrounded by a layer of tissue about one-half to one centimetre in thickness. The cervical mucous membrane is next seared with the Paquelin cautery, and a funnel-shaped piece is excised from the cervical

canal. Now a long needle armed with strong silk is passed through the centre of the stump, and, dividing the thread (Fig. 4, *a*), the pedicle is transversely ligated. Thus an absolute

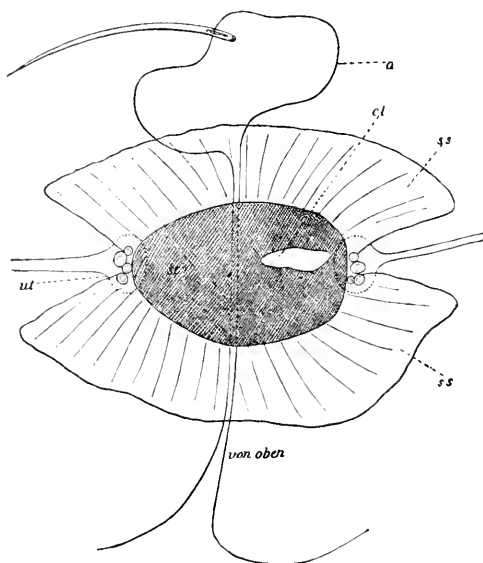


FIG. 4.

FIG. 4.—*cl*, excised cervical canal; *ss*, uterine stump, through which a strong silk ligature is passed; this must be divided by *a*; *ut*, uterine arteries.

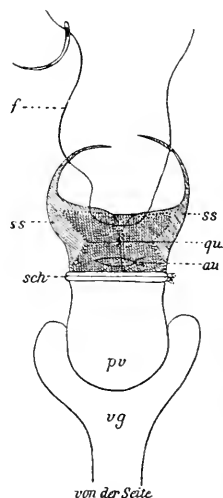


FIG. 5.

FIG. 5.—A side view of the pedicle. *vg*, vagina; *pv*, portio vaginalis; *sch*, rubber tube; *au*, ligated uterine arteries; *qu*, transverse ligatures; *ss*, peritoneal flaps; *f*, suture passed through the peritoneal flaps.

obliteration of the cervical canal and an effective barrier to infection, which is apt to enter from the vagina, is produced.

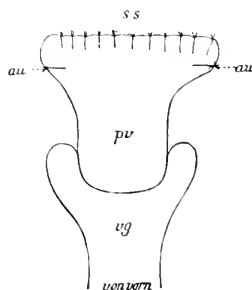


FIG. 6.—*vg*, vagina; *pv*, portio vaginalis; *au*, ligated uterine arteries; *ss*, peritoneum united over the pedicle by a row of interrupted sutures.

If the stump is small one set of ligatures suffices, and all that remains to do is to ligate the uterine arteries and unite the peritoneum over the stump. If the rubber tube has been placed

around the cervix at a high level, the arteries are best ligated below the constriction; they are easily recognized by their pulsation. The peritoneal flaps are united by a row of interrupted silk sutures, which must leave no open gaps (twelve to fifteen are generally required); and to obtain a more rapid union of the wound, folding-in of the cut edges of the peritoneum is advisable (Fig. 5). The rubber tube may now be removed, and if the vessels are properly ligated no hemorrhage will follow. The stump then looks like Fig. 6, and it is dropped into the pelvic cavity. The abdominal wound is closed in the usual way. The time required for the performance of this operation, which is absolutely bloodless, is about three-quarters to one hour. Several of the patients who were subjected to it were in a much reduced state of health.

J. R.

2. REGNIER: SYMPHYSIOTOMY FOUR AND A HALF YEARS AFTER THE PERFORMANCE OF THE CONSERVATIVE SECTIO CESAREA (*Centralblatt für Gynäkologie*, 1893, No. 6).—The author reports the following interesting case, which he believes is unique in medical literature. A Ipara, æt. 29, who had been delivered four and a half years ago through Cesarean section (Prof. Breisky), was admitted to the Vienna Maternity Hospital. The woman was in labor eleven hours: child in transverse presentation; heart sounds regular. Os fully dilated, membranes unruptured. Pelvis flat, rachitic. Spinae, 29 centimetres: crista, 29.75 centimetres; trochanters, 33 centimetres; conjugata externa, 16 centimetres; conjugata diagonalis, 9.5 centimetres; conjugata vera, 7.5 centimetres. Prof. Chrobak performed a symphysiotomy, dividing the symphysis and the ligamentum arcuatum, and by means of podalic version he extracted a living child (2,600 grammes) without any difficulty. The divided bones were united by two silver sutures.

J. R.

3. KEHRER: THE RESPIRATORY CENTRE IN THE NEW-BORN CHILD (*Centralblatt für Gynäkologie*, 1893, No. 7; and *Zeitschrift für Biologie*, 1892).—The basis of this paper is a case of craniotomy upon the living child. The technique of the operation was the usual one. After the child was extracted cardiac and respiratory action was clearly observed, and mechanical irritation would also induce active movements of the extremities. The cerebral hemispheres and the cerebellum had been entirely destroyed, but the medulla and spinal cord were intact. Making a vertical section through the medulla at the middle of the calamus scriptorius, respiration continued unaltered, but respiratory movements ceased immediately upon dividing the medulla at the lowest point of the calamus scriptorius. Therefore the respiratory centre in man is located in exactly the same place as in other mammals. (K.'s paper is of undoubted scientific value, settling once for all the disputes as to the situation of the

respiratory centre in man. It also shows the necessity of burying the perforator in the medulla oblongata and base of the brain, to avoid the distress of extracting a mutilated yet living child.)

J. R.

4. SCHAUTA: INVERSIO UTERI IN A WOMAN 78 YEARS OLD (*Archiv für Gynäkologie*, Band xliii., Heft 1).—Patient, 78 years old, passed the menopause thirty years ago. She stated that since a year a tumor, gradually increasing in size, protruded from the external genitals. She complains of bleeding from the tumor, backache, abdominal pains, and difficulty in urination. An examination showed a complete inversion of the whole uterus and vagina. In the right cornu a fibrous polypus, about the size of a walnut and having a broad base, was situated. The tubal orifices, which admitted a probe, could easily be distinguished. After extirpating the polypus, Schauta endeavored to reinvert the uterus, but, being unsuccessful, he removed the whole organ through a vaginal hysterectomy. The patient made a complete and rapid recovery.

J. R.

5. MÜLLERHEIM, ROBERT: SYMPHYSIOTOMY (*Centralblatt für Gynäkologie*, No. 30, 1892).—Müllerheim reports a case of symphysiotomy which was operated upon in the University Hospital in Strassburg. The woman, a IVpara, 34 years old, had a moderately contracted pelvis. She had given birth to two living children, while a third one died intrapartum after a tedious labor. She had been in labor six days when admitted to the hospital; the membranes had ruptured two days previously. Child in L. O. A. position, head movable above the brim, lower uterine segment very thin. As labor did not advance in spite of strong labor pains, and the woman showed symptoms of exhaustion, symphysiotomy was decided upon and performed. After dividing the articulation with a curved bistoury, the bones separated about one centimetre; but the distance was considerably increased through the division of the ligamentum arcuatum. The head easily entered the pelvis, and a living child was expelled after a few uterine contractions. The wound was closed with a few sutures, and dressed with thymol gauze and a starched bandage. An Esmarch bandage, for which a coarse towel was later substituted, was placed around the pelvis. The puerperium was normal except for a hematoma of the labium majus, which disappeared after a few days. The patient could move her legs without pain one week after the operation, could walk at the end of the third week, and left the hospital one month post operationem in perfect health and fully able to resume her household duties. The author concludes that symphysiotomy is a less dangerous operation than Cesarean section; that it can safely be performed in cases where the lower uterine segment is very thin, or in the presence of an existing infection. The instrumenta-

rium is simple, and less skilled assistants and preparations are required than are necessary for the performance of a laparotomy.

J. R.

ITEMS.

THE SECTION OF GYNECOLOGY AND ABDOMINAL SURGERY OF THE PAN-AMERICAN MEDICAL CONGRESS OF 1893 has been completely organized, with the following list of officers:

Executive President, Dr. William Warren Potter, 284 Franklin street, Buffalo, N. Y.; English-speaking Secretary, Dr. Brooks H. Wells, 71 West 45th street, N. Y.; Spanish-speaking Secretary, Dr. E. W. Cushing, 168 Newbury street, Boston, Mass., together with the following list of honorary presidents: Dr. Rafael Benavides, Lima, Peru; Dr. Young H. Bond, St. Louis; Dr. Domingo F. Cubas, Havana, Cuba; Dr. Clinton Cushing, San Francisco; Dr. Wm. E. B. Davis, Birmingham, Ala.; Dr. Christian Fenger, Chicago, Ill.; Dr. Frank P. Foster, New York; Dr. Thomas H. Hawkins, Denver; Dr. Wm. D. Haggard, Nashville; Dr. Edward W. Janks, Detroit; Dr. Joseph Taber Johnson, Washington; Dr. Ernest S. Lewis, New Orleans; Dr. Andres Lopez Martinez, Tegucigalpa, Honduras; Dr. Richard B. Maury, Memphis; Dr. Thomas E. McArdle, Washington; Dr. Lewis S. McMurtry, Louisville; Dr. Roberto Moericke, Santiago, Chile; Dr. Robert T. Morris, New York; Dr. Paul F. Mundé, New York; Dr. Joseph Price, Philadelphia; Dr. Charles A. L. Reed, Cincinnati; Dr. John C. Reeve, Dayton, O.; Dr. José Mannel de los Rios, Caracas, Venezuela; Dr. George H. Rohé, Catonsville, Md.; Dr. James F. W. Ross, Toronto, Canada; Dr. Albert Vander Veer, Albany; Dr. Milo B. Ward, Topeka; Dr. Henry P. C. Wilson, Baltimore; Dr. Nicolás San Juan, City of Mexico, Mexico.

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It is desirable that all those who intend to read papers before this Section should send their names, with titles of papers, to the secretary at an early day, as the regulations require that abstracts of such papers shall be in the hands of the Secretary-General not later than July 10th, 1893.

All members of the profession of medicine interested are earnestly and cordially invited to attend the meetings of the Section, to be held in Washington, Tuesday, Wednesday, Thursday, and Friday, September 5th, 6th, 7th, and 8th, 1893.

W. W. POTTER,

Executive President.

BROOKS H. WELLS, English-speaking Secretary.

E. W. CUSHING, Spanish-speaking Secretary.

NEW BY-LAWS, PAN-AMERICAN MEDICAL CONGRESS.—*Languages*: By-Law IX. Papers may be read in any language, providing that authors of the same shall furnish the Secretary-General with an abstract, not exceeding six hundred words in length, in either of the official languages (English, Spanish, French, or Portuguese) by not later than July 10th, 1893; and providing, further, that a copy of each such paper shall be furnished, in either of the official languages, at or before the time of the meeting, to the secretary of the section before which the same shall be read. Remarks upon papers may be made in any language, providing that members making such remarks shall furnish a copy of the same in either of the official languages before the adjournment of the session.

Publication: By-Law X. All papers read either in full or by title shall be immediately submitted for publication in the Transactions (Special Regulation 3), but authors may retain copies and publish the same at their pleasure after the adjournment of the Congress.

Constituent Organizations: By-Law XI. All medical, dental, and pharmaceutical organizations, the titles of which have been transmitted with approval to the Committee on Organization or which may hereafter be transmitted with approval to the Executive Committee by any member of the International Executive Committee, each for his own country, shall be subject to election by the Executive Committee, approved by the President, as constituent bodies of the First Pan-American Medical Congress, and each organization thus constituted shall have the right to designate as delegates all of its members attending the Congress, but no such organization shall meet at the time and place of meeting of the Congress as a distinct body; providing that the secretary of each such constituent body shall furnish a list of officers and a statement of the number of members of his respective organization to the Secretary-General not later than sixty days before the meeting of the Congress, and shall forward a list of delegates chosen, to reach the Secretary-General before the opening of the Congress.

By the Executive Committee.

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ORIGINAL COMMUNICATIONS.

CERTAIN PROBLEMS IN ABDOMINAL SURGERY, BASED ON
ONE HUNDRED CELIOTOMIES.¹

BY

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I wish to discuss certain of the very practical problems which confront the gynecologist in his daily work, and will use as a basis for the discussion the methods employed and the results obtained in one hundred consecutive celiotomies done at the Kensington Hospital for Women. In April, 1891, I read a paper before this Society detailing the technique in abdominal surgery as employed in that hospital. Further experience has served to confirm the value of most of the methods then in use; hence I shall refer to technique in this paper very briefly.

The essentials of success in abdominal surgery are:

1. Early operation.
2. Careful preparation of the patient, with especial reference to stimulating the emunctories and to securing asepsis of the abdominal wall.
3. An aseptic operating room.

¹ Read before the Philadelphia County Medical Society, February 22d, 1893.

4. Aseptic hands and instruments for the surgeon.
5. As great rapidity in operating as is compatible with careful, thorough work.
6. Irrigation and drainage in septic cases.
7. Careful after-treatment, embracing especially the withholding of fluids for about forty-eight hours, early purgation, and at least three weeks' confinement to bed.

Early Operation.—The principle of early operation at last has been established in ovarian cysts. It is equally applicable to cysts of the tubes, to ectopic gestation, to certain fibroid tumors, and to the graver forms of salpingitis. Delay is just as dangerous in these cases of celiotomy as in cases of ovariectomy. Delay in operating is the cause of most of the deaths and of most of the failures to cure in this class of cases. In ectopic pregnancy delay often means hemorrhage and death—perhaps before operation, or shortly after operation—from acute anemia. Twice I have operated where the abdomen was so full of blood that it was distended as from ascites. In both these cases the hemorrhage had been so large that death resulted from acute anemia. In the inflammatory cases, with collections of serum, blood, or pus in the tubes or ovaries, delay means progressive invalidism, with perhaps absolute prostration of the centres of life. It means repeated attacks of peritonitis, increasing adhesions, matting together of the pelvic and abdominal viscera, and even the degeneration of distant organs, especially the kidneys and lungs. In this class especially delay is bad. A cure is next to impossible without a radical operation; and delay renders this more difficult and dangerous, and less certain to restore the sufferer to health and strength. The neuralgic pains which often distress this class of women for months after the removal of the appendages are due almost always to adhesions, the result of repeated attacks of peritonitis, together with depraved blood and general malnutrition, the result of long-continued invalidism. With reference to this class of cases (hydro-, hemo-, and pyosalpinx, and abscess of the ovary), I have no doubt that if those who are inclined to deery pelvic surgery and to magnify its shortcomings would expend their energies in inducing these poor women to submit to early operation, we would have fewer deaths from operation and far fewer cases of post-operation pelvic pain. In other words, most of the deaths and most of the relative failures from operation in these cases are

clearly chargeable to those who advocate what they falsely call conservative treatment, and thus deprive their patients of the advantages of early operative treatment. These remarks do not apply to non-cystic inflammations of the uterine appendages, of which I shall speak later. Nor shall I discuss here the peculiarities of fibroid tumors which demand early operation. Of the other essentials to success I shall say nothing, except concerning drainage.

Drainage.—There is a growing tendency among surgeons to restrict the use of drainage and to attribute certain dangers to its use. In the hands of careful men most excellent results are obtained practically without the employment of drainage. This is a fact which merits the closest attention. The results obtained by Kelly, Mann, Baer, Dudley, and others show conclusively that drainage is neither so necessary nor so valuable as has been believed. Nevertheless I am not prepared to believe that it is not of great value in septic operations and in cases in which it is necessary to separate many vascular adhesions. I use drainage constantly in such cases, and my results have been most gratifying—certainly as good as those reported by other surgeons. That there is a definite risk of the accumulation and decomposition of serum in “septic” operations and in operations dealing with extensive vascular adhesions, giving rise to septic peritonitis and death, was proved by the work of our elders. To Keith especially do we owe a debt for emphasizing this fact and for proving that this risk can be lessened greatly by the use of the drainage tube. Those who oppose drainage point to their results as proving that drainage is unnecessary, or practically so. I believe that the better result obtained at present without drainage, as compared with the results of ten years ago, is explained by five facts:

1. Surgeons do cleaner work: they are more aseptic than formerly.
2. They have better means for securing hemostasis.
3. They do not use irritating chemical antiseptic solutions in the peritoneal cavity.
4. They deprive their patients of water for forty-eight hours after operation, thus producing systemic thirst and bringing about the absorption of serum from the peritoneal cavity.
5. They purge early and freely on the first sign of peritoneal irritation.

These facts and alterations in practice undoubtedly render the employment of drainage far less imperative than it was ten years ago; but they do not, in my judgment, do away with its advantage in bad cases.

The opponents of drainage not only deny the beneficent nature of the drainage tube, but they attribute to its use various harmful effects:

1. That it is an open door for the entrance of infection.
2. That it produces fecal fistula.
3. That it favors hernia.

I am inclined to admit the validity of the third objection without argument. It is also true that the tube may prove an open door for infection. The careful work of Robb and Ghiskey in Kelly's service at the Johns Hopkins Hospital proves that it is impossible to prevent infection of the tube by mere cleanliness or by pure asepsis not maintained by the use of chemical antiseptics. In these observations nothing but cotton or gauze, sterilized by heat and held in an aseptic forceps, was passed down the tube. Yet infection of the tube was frequent. Robb concludes from these experiments that drainage is harmful because it favors post-operative infection. This conclusion is logically drawn only with reference to drainage as practised by him. His results have only a relative bearing upon the general question of drainage. It is probable that the open method of drainage, as practised by the disciples of Tait, will give an even larger percentage of cases of tube infection than those reported by Robb, but, so far as I know, no careful observations on this point have been made. By using sterile gauze wet in sublimate solution (1:2000) to fill the tube, which has previously been drained by soaking up the fluids by means of pledgets of sterile cotton held in a forceps, I believe the tube can be kept aseptic. The continual presence of the wet bichloride of mercury gauze in the tube kills or inhibits the growth of any germs which may make an entrance. I have practised this method of managing the tube in nearly one hundred and fifty cases, and have the utmost confidence in its efficacy in preventing infection through the tube. In addition to using the wet bichloride gauze as capillary drain and as a disinfecting plug for the tube, I have not hesitated to pass cotton soaked in bichloride solution to the bottom of Douglas' pouch each time I dressed the tube (two or three times in twenty-four hours), as an additional means of pre-

venting infection. From long experience I am able to maintain that this restricted application of bichloride solution is harmless, although I am as firmly persuaded as any one that the extensive use of chemical solutions within the peritoneal cavity is harmful and therefore bad surgery. By this method of managing the tube I believe it is possible to prevent infection along the *inside* of the tube. At times infection occurs along the *outside* of the tube, especially when it is in position longer than thirty-six hours. This is best prevented by using a *wet* bichloride gauze dressing over the wound and around the tube. But when the tube is in position several days, I frankly admit that infection from the skin can take place along the outside of the tube in spite of all we can do. This, in my experience, has invariably been of mild character, without serious results.

Concerning the second objection to "glass drainage," that it produces fecal fistula, I believe that the Scotch verdict of "not proven" must be brought in. That a glass tube resting on the bowel for a long time, without rotation or elevation, might cause ulceration of the bowel, is true; but no one recommends such bad practice; and when the bowel has been seriously injured in separating adhesions, so that fecal fistula is to be feared, I feel decidedly safer with a tube in position to act as a danger signal and to provide a means of exit for fecal matter should a fistula form. That the probability of fecal fistula is slight in careful hands is indicated by the fact that I have had but two such cases.

I shall now give an analysis of the one hundred consecutive celiotomies herewith reported.

These operations have been done for the following conditions:

Pregnancy in flat pelvis, conjugata vera 2 $\frac{1}{4}$ in.....	1
Ovarian cysts: Treble, 1; double, 2; single, 8; single malignant, 1.....	12
Ovarian cysts complicated by: Salpingitis and pelvic adhesions, 4; hydro- and hematosalpinx, 2; double pyosalpinx, 1.....	7
Suppurating ovarian cysts complicated by: Double salpingitis, 2; hydrosalpinx, 1; pyosalpinx, 2.....	5
Pyosalpinx: Double, 7; double, with abscess of both ovaries, 1; single, 3; single, and abscess of ovary, 1.....	12
Fibro-cyst of uterus ..	1
Fibro-myoma of uterus ..	9
Extra-uterine pregnancy: Ruptured, 2; unruptured, 1.....	3
Double hydrosalpinx	3

Hydro- and hæmatosalpinx.....	1
Tubercular peritonitis with double pyosalpinx (tubercular).....	1
Tubercular peritonitis with cancer of pelvis.....	2
Tubercular peritonitis.....	1
Pelvic abscess.....	1
Pelvic cellulitis.....	1
Malignant tumor of kidney.....	1
Peritoneal carcinoma.....	1
Hemorrhage into the pregnant bifid uterus.....	1
Cancer of colon.....	1
Ventral hernia (post-operative).....	3
Inguinal hernia and femoral hernia, 1 each.....	2
Catarrhal appendicitis (recurrent).....	1
Retroflexion of uterus, with adherent appendages.....	2
Retroflexion of uterus—left ovaritis.....	1
Chronic salpingitis and ovaritis: One side, 6; both sides, 2; both sides with broad-ligament cyst, 1.....	9
Chronic salpingo-oöphoritis with extensive adhesions.....	10
Hematoma of right, cirrhosis of left ovary.....	1
Hypertrophic, cystic, and cirrhotic degeneration of ovaries—hyste- ria with periods ¹	1
Arrested development of the sexual organs—cystic ovaries—chronic peritonitis.....	4
Menstrual insanity with fibroid tumor and left ovarian cyst.....	1
Endometritis fungosa (adenoma), salpingitis, cystic ovaries, uterine hemorrhage.....	1

In the following operations both uterine appendages were re-
moved for:

Uterine fibro-myoma.....	5
Ovarian cyst.....	7
Ovarian cyst complicated by suppuration in cyst, or pyo-, hydro-, or hæmatosalpinx or salpingitis.....	10
Chronic salpingo-oöphoritis with extensive adhesions.....	10
Chronic salpingo-oöphoritis with broad-ligament cyst.....	1
Pyosalpinx and ovarian abscess.....	11
Hydro- and hæmatosalpinx.....	4
Extra-uterine pregnancy.....	3
Arrested development of the sexual organs, with chronic ovaritis, salpingitis, and peritonitis.....	4
Hematoma and cirrhosis of ovaries.....	1
Retroflexion of uterus and adherent appendages.....	1
Endometritis fungosa, salpingitis, cystic ovaries, metrorrhagia.....	1
Chronic ovaritis and salpingitis without adhesions.....	2
Small uterine fibroid and ovarian cyst—menstrual insanity.....	1

¹ In this connection it should be mentioned that in one case of ovarian cyst hystero-epilepsy existed; also in one case of ovarian cyst with adherent appendages. In the three cases a cure has resulted.

Hypertrophic, cystic, and cirrhotic degeneration of ovaries—hysteria with periods.....	1
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62

One uterine appendage was removed for:

Ovarian cyst	4
Ovarian cyst complicated by pyo- or hematosalpinx.....	2
Pyosalpinx.....	1
Pyosalpinx and abscess of ovary.....	1
Retroflexion of uterus—left ovaritis.....	1
Retroflexion of uterus, with adherent appendages.....	1
Chronic salpingo-oöphoritis.....	6

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16

Miscellaneous celiotomies:

Hysterectomy for fibro-cyst, 1; for soft fibroid, 2.....	3
Exploratory incisions.....	9
Tubercular fluid evacuated.....	3
Cesarean section.....	1
Appendix vermiformis removed.....	1
Herniotomy: Post-operative ventral hernia.....	3
Herniotomy: Inguinal, 1; femoral, 1.....	2

Total.....100

Cases 35, 37, 41, 43, 54, 73 died—6 per cent.

The diseases for which the abdominal sections were done must be divided into thirty-one groups. It would not be profitable, nor is it possible in the time at my disposal, to discuss each of these indications.

Happily it is no longer necessary to discuss the necessity for early operation in labor complicated by deformity of the pelvis sufficient to prevent delivery *per vias naturales*, for ovarian and tubal cysts, for certain fibroid tumors, for extra-uterine pregnancy, and for the well-marked cases of chronic salpingo-oöphoritis with adhesions. Those who are not convinced of the necessity and advantages of operation in these cases are either not familiar with the diseases in question or are so constituted as not to be convinced by evidence or argument. For such conditions there have been sixty-five operations.

Chronic Salpingo-oöphoritis without Adhesions.—The cases in which the necessity for, and advisability of, operation is least certain are cases of chronic salpingitis and ovaritis, with trifling adhesions or none at all, and in which the principal symptom is pain, local and reflex, with various neuroses and disturbances of

digestion and nutrition as complications. In this class of cases there have been eight operations; in six cases one uterine appendage was removed, in two cases both were removed. If to these we add an operation for hematoma of the right ovary and cirrhosis of the left, and a case of double salpingo-oöphoritis with a small broad-ligament cyst, and also a case of hypertrophic cystic and cirrhotic degeneration of the ovaries, with marked hysterical catalepsy at the menstrual periods, we have eleven operations, in five of which both uterine appendages were removed. Indeed, in six cases both were removed, because one case was operated on twice. All of these patients recovered from the operation, and, speaking in general terms, they have been much benefited or entirely cured. One patient (Cases 32 and 63), with cystic ovaries, salpingitis, and metrorrhagia, was not benefited by removing the worst appendage, but was entirely cured when the second one was removed. Case 42, with hypertrophic, cystic, and cirrhotic degeneration of the ovaries, and having hysterical cataleptic attacks at her periods, was entirely cured. In every case the results obtained justified the operation, and in most of them the results were entirely satisfactory.

In my judgment the indication for operation in this class of cases is difficult to define, and too much caution cannot be maintained in advising operation. The cases reported were operated upon only after the failure of long-continued non-operative treatment. I believe that operation is not justifiable in such cases, no matter how great the suffering, unless the patient first submits to well-directed, long-continued treatment. If this fails to cure, and the patient's health is destroyed, her life made miserable, and she herself perhaps pauperized by her condition, operation is indicated. Under such conditions operation and the removal of the offending member is a great boon to these sufferers. With careful after-treatment, tending to improve nutrition, many otherwise hopeless sufferers in this way can be cured. These patients were selected for operation from a large number, and many of them had been under treatment from one to three years without material improvement.

Arrested Development of the Sexual Organs.—In four cases of arrested development of the sexual organs, with cystic ovaries and some chronic peritonitis, both uterine appendages were removed. All that was said concerning caution in advising opera-

tion in the previous class of cases is even more applicable to this class. Each of these women was single, had had delayed puberty, with abnormal menstruation, with marked anemia and various neuralgias, and each had been under treatment for a long time without avail. Life was a burden to each. The results have been all that could be desired in three, and the fourth expresses herself as happy at being relieved of her menstrual pains in the pelvis, mammary glands, and head. She is still very anemic, but supports herself as a dressmaker. One is now a successful trained nurse, another a saleswoman, and the last one is doing general housework as a servant.

Post-operative Ventral Hernia.—There have been three operations for post-operative ventral hernia—two in cases previously operated on by myself. These are the only herniotomies I have done on my own cases, although not the only hernias which have occurred in my practice. In each of these cases the primary section was for pus in the pelvis in women much broken in health, and in each suppuration followed the operation, preventing primary union of the abdominal wall. All three were poor women, who were obliged to do heavy work shortly after their operations were done.

I believe that the causes of post-operative ventral hernia are :

1. Extreme malnutrition of the patient when operated upon.
2. Failure to approximate the divided transverse aponeurosis.
3. Suppuration of the abdominal wound.
4. Drainage.
5. Early rising from bed.
6. Too early return to work.
7. Failure to wear a bandage (?).

A certain low percentage of hernias is unavoidable, but a practice based upon a recognition of the preceding facts will greatly restrict their number.

The first case herewith reported was operated upon by dissecting out the sac, freeing the intraperitoneal adhesions, and then by passing sutures in the usual way through each lip of the wound. Before these were tied the divided aponeurosis was united by a running catgut suture. The other two were sutured differently. After the sac was carefully dissected out, so that the three layers of the abdominal wall—skin, aponeurosis and muscle, and peritoneum—were distinctly free and visible, silkworm-gut sutures were passed, beginning at the aponeu-

rosis and passing through it and the rectus muscle and peritoneum upon one side, and in the reverse way upon the opposite side of the incision. These were tied and cut off close to the knots, to become permanent buried stays or supports to the wound. The skin was then united by superficial sutures. This method of suturing in hernia is original with myself, but the principle, I believe, is to be credited to Edebohls, who devised the method for his ordinary celiotomy wounds.¹ The three cases have done well.

Radical Cure of Inguinal and Femoral Hernia.—There was one operation for the radical cure of inguinal hernia and one for femoral hernia. In the case of the inguinal hernia the lower end of the sac had shut itself off from the upper portion, and in this way a cystic tumor had formed as large as a hen's egg. This was removed, and the sac was pulled down, ligated, and returned to the peritoneal cavity. The pillars of the ring were whipped together with a continuous silkworm suture, which was left as a permanent support.

The femoral hernia contained adherent omentum. The operation was done as in the first case. A cure has resulted in both cases. I wish to call attention to the use of the *continued silkworm buried* suture, or a number of interrupted buried sutures, for closing the peritoneal cavity and the pillars of the ring, in operating for hernia. I believe the method will be of service in preventing a return of the hernia.

I was somewhat doubtful about including inguinal and femoral herniotomies among abdominal sections. Anatomically the classification is correct, but custom is rather against it. But whether these herniotomies be included or rejected in this report is of little importance from the standpoint of results, as eight operations done since the date of this report could be added, making one hundred and eight in all, with but six deaths. Two of the deaths were cases of incomplete ovariectomy, one of which was for a malignant growth.

I shall pass over the three operations for retroflexion of the uterus, with ovaritis and with adherent uterine appendages, also the one operation for recurrent catarrhal appendicitis and the three operations to evacuate fluid in tubercular cases, and take up the exploratory sections.

Exploratory Celiotomies.—There were nine exploratory sec-

¹ Since writing the above I have learned that Edebohls first used this method of suturing in a case of hernia.

tions. One was made in the groin for a supposed abscess following removal of the uterine appendages for fibroid of the womb. A cellulitis of the right broad ligament (infected pedicle¹) was found. The pelvic peritoneum was inflamed, but the swelling was in the broad ligament.

The second case was an operation for fibroid. The bladder was anomalous, having the peritoneum reflected upon it just below the umbilicus. As this prevented the extraperitoneal treatment of the pedicle, the operation was abandoned. The third patient was a case of true pelvic abscess following labor. The section was done to determine whether pyosalpinx existed. The abscess was evacuated in the groin by a second incision. The fourth patient was supposed to be a case of pelvic suppuration (pyosalpinx or abscess of the ovary), but proved to be cancer of the colon. The fifth case was operated upon as an ovarian tumor. The tumor was intraligamentous; filled the pelvis; was covered with the platysma layer of the broad ligament; looked like a pregnant uterus; and as no landmarks could be made out, owing to a recent peritonitis, the suspicion of pregnancy was entertained, and unfortunately the operation was abandoned. The woman died. The seventh case was an operation for fibroid. The woman collapsed when the abdomen was opened, so the operation was abandoned. The eighth case was thought to have a ruptured extra-uterine pregnancy. It proved to be a hemorrhage into one horn of a pregnant bifid uterus. The sixth and ninth cases were diagnosed as cancer, but at the request of the patient the abdomen was opened in the hope of finding the diagnosis a mistake.

I am thoroughly convinced of the importance and the propriety of opening the abdomen in certain cases to complete the diagnosis, but I have never yet been obliged to open the abdomen without a very definite knowledge of the physical conditions present. The exploration was to assist in interpreting the physical conditions. I am entirely out of sympathy with the theory that it is necessary to open the abdomen to find out whether a woman has pelvic or abdominal disease. Such a proposition is a confession of too great ignorance of the subject of diagnosis.

I will simply remark, in conclusion, that it is difficult to

¹ Having had a number of infected pedicles, and having seen no hematomata following abdominal sections, it has occurred to me that Tait's post operative hematomata are really infected pedicles.

separate strictly exploratory celiotomies from abandoned operations in making a classification.

Cystic Degeneration of the Ovaries as a Cause of Metrorrhagia.—In four cases the relation between cystic ovaries and metrorrhagia was striking. In two of the cases there is no doubt that it was the only cause of the uterine hemorrhage. Of the doubtful cases, No. 4, age 42, had been an invalid for fifteen years, with pelvic disease originating in childbirth. Prior to her operation she had been bleeding almost constantly for three years, during two years of which time she was confined to bed. The ovaries were cystic, but in addition chronic salpingitis with adhesions existed, so that it is only probable that the metrorrhagia was due to the ovarian disease. The hemorrhage ceased with the removal of the appendages. Case No. 64, age 27, primipara, is likewise a doubtful illustration of metrorrhagia from cystic disease of the ovaries. Mrs. S. came under my care for supposed miscarriage at the fifth week. Hemorrhage continuing, I curetted the uterus, and repeated the curetting, without anesthesia, some weeks later. This case was my first and last one in which I have attempted to curette the uterus without anesthesia. It proved so painful to the patient and so unsatisfactory to myself that I shall not attempt it again. As Mrs. S. continued to bleed, I admitted her to the Kensington Hospital for Women, and curetted the womb thoroughly, removing a large quantity of material with the curette. After a few weeks bleeding recurred and the patient became blanched. From the beginning it had been apparent that the left ovary was diseased, and this seemed to me to explain the recurring hemorrhages. I explained the situation fully to the husband and to the patient, recommended one more curetting, and, that failing, the removal of the appendages. They both insisted upon the more radical operation, which, under the circumstances, I could not refuse.

The womb was again curetted and the appendages removed February 15th, 1892. In April the bleeding recurred and continued. I entertained the diagnosis of malignant adenoma, but concluded to curette the uterus and pack it with gauze soaked in fifty-per-cent chloride of zinc solution. This produced a slough of the inner layers of the uterus about one-fourth of an inch in depth, and also cured the bleeding.

In the other two cases, 28 and 32-63, the relation of the

cystic disease to the bleeding was unmistakable. Case 28, age 23, primipara, had been bleeding two and one-half years, during which time she had been treated medically, also by electricity, and besides she had had the rest cure. The uterus was enlarged, as was the left ovary. Curetting stopped the bleeding for four months, when it recurred. The uterine appendages were removed April 23d, 1891. Each ovary contained a small polycyst. There has been no recurrence of the bleeding. Case 32-63, age 21, had had metrorrhagia for eight months, which was increasing in spite of judicious treatment on the part of her physician, Dr. G. G. Faught. Examination showed enlarged, inflamed ovaries, especially the left one. The uterus was curetted and the left ovary and tube removed. No improvement followed, and in spite of careful treatment the patient's condition ran down. Nine months after the first operation the other appendage was removed. The ovaries were both markedly cystic, and both tubes were the seat of catarrhal salpingitis. The patient has made a perfect recovery.

Six of the celiotomies were followed by death. Case 35, age 30, IIIpara, was a fat woman in fair condition. She had a suppurating intraligamentous cyst of the left ovary. The cyst had become inflamed during her last puerperium, some two months prior to her operation. The operation was extremely difficult and lasted ninety minutes. The purulent contents of the cyst escaped during the operation. Free irrigation and glass drainage were used. The patient went to bed somewhat shocked. She shortly developed hyperpyrexia and died within twenty-four hours. I was at a loss to determine whether the fever was due to virulent sepsis or to nervous disturbance.

Case 37, age 54, Xpara, was *in extremis* when operated upon. She was enormously distended, and had had orthopnea and paralysis of the bowels from pressure for days. A ruptured colloid cyst of the right ovary and two cysts of the left ovary were removed. Mrs. J. died in six hours, plainly from filling up of the portal vessels, due to the removal of the immense pressure caused by the tumors.

Case 41, age 48, primipara, was prostrated and emaciated. A large, malignant cyst of the left ovary was removed. The broad ligament was infiltrated with cancer. During the operation, in making traction on the cyst, the entire upper border of the broad ligament tore away. Instantly the pelvis was

No.	Date.	Age.	M. S. W.	Par.	Mis.	Condition.	Disease.	Operation.	Time (in minutes)	Drain.	Course.	Temp.	Union.	Result.	Discharged.
1	J. W., Oct. 15, 1890.	30 S.		0	0	Thin and anemic.	Fibroid tumor.....	Removal of uterine appendages.	20 days.	2 days.	Uncompliated.	F. ¹	P. ³	R. ⁴	Dec. 20, 1890.
2	Mrs. F., Oct. 15, 1890.	26 M.		0	0	Fairly well nourished	Small right ovarian tumor and large hydrosalpinx; left hematosalpinx and atrophied ovary.	Adhesions very dense; left ovary could not be removed unless torn from its bed; it was left.	40 days.	7 days.	Slow.....	F.	P.	R.	Nov. 20, 1890.
3	Mrs. L., Oct. 18, 1890.	27 M.		0	0	Healthy appearance.	Right ovarian tumor, double pyosalpinx.	Removal of both uterine appendages.	40	4 days.	Convalescence slow.	F.	P.	R.	Nov. 15, 1890.
4	Mrs. W., Nov. 5, 1890.	42 M.		2	1	Very poor.	Chronic invalidism; cirrhotic, adherent ovaries; chronic salpingitis; metrorrhagia.	Uterus dilated and perforated; abdominal section, with removal of cystic and cirrhotic ovaries.	45	5 days.	Convalescence slow.	F.	P.	R.	Dec. 14, 1890.
5	J. W., Nov. 8, 1890.	30 S.		0	0	Anemic....	Cellulitis.....	Exploratory section over exudate.	25	Yes.	Convalescence slow	F.	P.	R.	Dec. 20, 1890.
6	Mrs. A., Nov. 18, 1890.	24 M.		2	0	Neurasthenic.	Salpingitis with hypertrophic cystic and cirrhotic degeneration of the ovaries with adhesions.	Removal of both uterine appendages.	30	2 days.	Uncompliated.	A. ²	P.	R.	Dec. 12, 1890.
7	Miss C., Nov. 23, 1890.	23 S.		0	0	Neurasthenic.	Dysmenorrhea and constant pelvic pain; cirrhotic and cystic ovaries; chronic pelvic peritonitis, arrested sexual development.	Removal of both uterine appendages.	25	2 days.	Uncompliated.	A.	P.	R.	Dec. 19, 1890.

¹ F. = Febrile.² A. = Afebrile.³ P. = Primary.⁴ R. = Recovery.

8 Mrs. M., Dec. 10, 1890.	0 Fair.....	0	0	30 M.	Double pyosalpinx.	Removal of uterine appendages.	60 days.	4 days.	Had either for six days.	P.	R.
9 Mrs. B., Dec. 19, 1890.	3 Bad.....	2	3	34 M.	Left ovarian cyst and hematosalpinx.	Removal of the left uterine appendage.	30	2 days.	Uninterrupted.	P.	R.
10 Mrs. L., Jan. 10, 1891.	0 Very good	3	0	37 M.	Double salpingitis with adhesions; extra uterine pregnancy on right side unruptured.	Removal of both uterine appendages (diagnosis confirmed by Dr. Pearsoll, Univ. of Pennsylvania).	25	32 hours.	Uninterrupted.	P.	R.
11 Mrs. H., Jan. 17, 1891.	0 Debilitated.	5	0	41 M.	Salpingitis, cystic ovaries, and chronic peritonitis.	Removal of both uterine appendages.	25	Yes	Oozing hemorrhage began six hours after operation; continued 12 hours.	P.	R.
12 Mrs. H., Jan. 17, 1891.	0 Good.....	2	0	38 M.	Fibroid tumors of uterus; left ovarian cyst; menstrual insanity.	Removal of both uterine appendages.	...	1 day.	Uninterrupted.	P.	R.
13 Mrs. F., Jan. 22, 1891.	0 Good.....	0	0	28 M.	Chronic salpingitis and ovaritis; extensive peritonitis; universal adhesions.	Removal of both uterine appendages. Owing to extensive and dense adhesions the operation was not a clean one.	55	2½ days.	Stitch-hole abscess during second week.	P.	R.
14 Mrs. C., Jan. 28, 1891.	Very poor.	...	...	41 M.	Tubercular peritonitis; cancer of liver, stomach, and duodenum.	Abdominal section and evacuation of four gallons of fluid; it was the sixth section; apparently the tubercular nodules are undergoing cicatrization.	25	80 hours	Continual vomiting resulting from cancer.	P.	R.

¹ Death from exhaustion caused by constant vomiting, excited by cancer of stomach, occurred shortly afterward. Had been vomiting for two months.

No.	Date.	Age.	M. & W.	Par.	Mis.	Condition.	Disease.	Operation.	Time (in minutes).	Drain.	Course.	Temp.	Union.	Result.	Discharged.
15	Mrs. M., Feb. 5, 1891.	26	M.	0	0	Good	Pyosalpinx on right side, salpingitis on left side.	Removal of both uterine appendages. The abscess had perforated the muscular coat of colon, was curetted and sutured.	40	2 days.	Uninterrupted.	A.	P.	R.	Feb. 25, 1891.
16	Mrs. P., Mar. 11, 1891.	33	M.	1	1	Fair... ..	Ovarian tumor on right side, salpingitis on left side.	Removal of both uterine appendages.	30	2 days.	Uninterrupted.	A.	P.	R.	April 8, 1891.
17	Mrs. H., Mar. 11, 1891.	33	M.	1	0	Good	Retroflexion; salpingitis on both sides; uterus adherent	Removal of both uterine appendages. Ligature placed under round ligaments.	25	5 days.	Uninterrupted.	A.	P.	R.	Apr. 16, 1891.
18	Mrs. H., Mar. 16, 1891.	38	M.	2	1	Fair	Double hydrosalpinx.	Removal of both uterine appendages.	30	4 days.	Uninterrupted.	A.	P.	R.	Apr. 14, 1891.
19	Mrs. A., Mar. 16, 1891.	36	M.	3	2	Good	Double hydrosalpinx.	Removal of both uterine appendages; very dense adhesions; collapse from chloroform.	50	2 days.	Uninterrupted.	A.	P.	R.	Apr. 14, 1891.
20	Miss T., Mar. 22, 1891.	17	S.	0	0	Good	Fibroid of uterus .	Exploratory section; bladder anomalous, extending to within one inch of umbilicus.	30	None	Uninterrupted.	A.	P.	R.	Apr. 27, 1891.
21	Miss S., Mar. 23, 1891.	34	S.	0	0	Worn	Rudimentary appendages, neurasthenia, cystic ovaries.	Removal of both uterine appendages.	30	2 days.	Uninterrupted.	A.	P.	R.	May 3, 1891.
22	Mrs. McG., Mar. 26, 1891	40	M.	3	0	Worn	Tubercular peritonitis and cancer of appendages.	Abdominal section and evacuation of fluid.	90	6 days.	Uninterrupted.	Slightly febrile. Temp. 100½°.	P.	R.	Apr. 21, 1891.

	2, 1891.		tender left ovary.	pendage; ligature under round ligament.	day.			1891.
24	Miss McC., Apr. 10, 1891.	0	0 Fair.....	Salpingitis on left side.	20	1 day.	Uninter-rupted.	A. May 2, 1891.
25	Mrs. L., Apr. 10, 1891.	2	0 Bad.....	True pelvic abscess....	15	None.	Pelvic abscess evacuated on twelfth day.	F. May 2, 1891.
26	Mrs. B., Apr. 16, 1891.	0	0 Good.....	Double salpingitis with dense adhesions.	30	3 days.	Uninter-rupted.	A. May 14, 1891.
27	Mrs. R., Apr. 23, 1891.	2	0 Good.....	Post operation, ventral hernia.	60	None.	Uninter-rupted.	A. May 29, 1891.
28	B. B., Apr. 23, 1891.	1	0 Very anemic.	Double ovarian cystoma (small); long-continued metrorrhagia.	25	1 day.	Uninter-rupted.	A. May 19, 1891.
29	Mrs. C., Apr. 27, 1891.	0	0 Very bad..	Double ovarian, thin-walled cystoma.	40	1 day.	Uninter-rupted.	A. May 25, 1891.
30	Mrs. H., May 11, 1891.	9	2 Poor.....	Suppurating left ovarian cyst; double salpingitis; universal adhesions.	90	7 days.	Uninter-rupted.	A. June 17, 1891.
31	Mrs. B., May 28, 1891.	2	0 Good.....	Large edematous myoma, larger than full-term pregnancy.	24	24 h. hours.	Stump clipped off on tenth day.	A. July 15, 1891.
32	Miss W., May 28, 1891.	0	0 Fair.....	Salpingitis and ovaritis on left side; metrorrhagia.	20	2 days.	Uninter-rupted.	A. June 25, 1891.
33	Mrs. W., June 15, 1891.	3	0 Poor....	Double salpingitis; broad-ligament cyst on right side; adherent appendages.	40	1 day.	Uninter-rupted.	F. Temp 102°. July 12, 1891.

No.	Date.	Age.	M., S., W.	Par.	Mts.	Condition.	Disease.	Operation.	Time (in minutes).	Drain.	Course.	Temp.	Union.	Result.	Discharged.
34	L. C., June 18, 1891.	23	M.	1	0	Fair	Ovarian tumor on right side, salpingitis and ovaritis on left side.	Removal of both uterine appendages.	25	2 days.	Uninterrupted.	A.	P.	R.	July 14, 1891.
35	Mrs. R., June 25, 1891.	30	M.	3	..	Peritonitis.	Intraligamentary cyst (suppurating) of left ovary.	Enucleation of cyst; removal of appendage; free irrigation.	90	Yes...	Died within 24 hrs in hyperpyrexia.	F.	.....	D.	.....
36	Mrs. L., June 29, 1891.	34	M.	1	..	Poor	Adherent appendages Gumma beneath omentum and Fallopian tube.	Removal of both uterine appendages.	40	26 days.	Belly reopened on 3d day and flushed.	F.	.....	R.	July 12, 1891.
37	Mrs. J., July 2, 1891.	54	M.	7	3	Very bad.	Immense right ovarian colloid cyst; two left ovarian cysts; uterine myoma as large as a fetal head.	Removal of ovarian tumors; right tumor having burst, the colloid material was free in peritoneal cavity.	40	Yes...	Death in 6 hrs from shock (?) Pressure removed from port-tal vessels	.....	.....	D.	.....
38	Mrs. B., July 25, 1891.	35	M.	2	0	Fair	Right ovarian cyst; left tube and ovary inflamed and adherent.	Removal of both uterine appendages.	40	2 days	Belly reopened during 3d week, owing to infection of the left pelvic.	F.	.....	R.	Aug. 27, 1891.
39	Mrs. F., July 27, 1891.	30	M.	0	0	Poor. Bedridden for months.	Cancer of colon (?)	Exploratory section	25	None.	Uninterrupted.	A.	P.	R.	Aug. 15, 1891.
40	Mrs. R., July 30, 1891.	30	S.	0	0	Anemic	Imperfect development.	Removal of uterine appendages.	30	....	Uninterrupted.	A.	P.	R.	Aug. 22, 1891.

No.	Date.	Age.	M., S., W.	Par.	Mis.	Condition.	Disease.	Operation.	Time (in minutes).	Drain.	Course.	Temp.	Union.	Result.	Dis- charged.
51	Miss H., Oct. 4, 1891.	24	S.	0	0	Good . . .	Intraligamentous ovarian cyst with extensive adhesions on left side.	Cyst enucleated and both uterine appendages removed.	70	24 hrs.	Uninterrupted.	F.	P.	R.	Nov. 11, 1891.
52	Mrs. H., Oct. 8, 1891.	35	M.	2	0	Bad	Ruptured tubal pregnancy on left side; right tube adherent	Both uterine appendages removed.	45	1½ days.	Uninterrupted.	F.	P.	R.	Nov. 6, 1891.
53	Mrs. K., Oct. 19, 1891.	36	W.	0	0	Very bad; chronic bronchitis	Fibro-cyst of uterus.	Hysterectomy	120	None.	Stump clipped off on 11th day.	A.	P. except about pedicle.	R.	Dec. 14, 1891.
54	Mrs. U., Oct. 22, 1891.	28	M.	1	1	Poor	Suppurating ovarian intraligamentous cyst.	Exploratory section; operation abandoned because the diagnosis of pregnancy was adopted.	30	Yes . .	Peritonitis	F.	.....	D.	.....
55	Miss N., Nov. 5, 1891.	30	S.	0	0	Fair	Ovarian cyst on left side; uterine myoma.	Removal of both uterine appendages.	35	None.	Uninterrupted.	A.	P.	R.	Nov. 20, 1891.
56	Mrs. B., Nov. 9, 1891.	22	M.	1	1	Fair	Pyosalpinx and intra-peritoneal abscess.	Removal of both uterine appendages.	40	3 days	Uninterrupted.	F.	P.	R.	Dec. 7, 1891.
57	Mrs. McG., Dec. 3, 1891	..	M.	0	0	Fair	Uterine myoma . . .	Removal of both uterine appendages.	35	None.	Uninterrupted.	A.	P.	R.	Jan. 1, 1892.
58	Mrs. A., Dec. 6, 1891.	32	M.	..	..	Fair	Femoral hernia . . .	Radical operation	25	None.	Uninterrupted.	A.	P.	R.	Jan. 27, 1892.
59	Mrs. H., Dec. 19, 1891.	40	M.	0	0	Good	Double pyosalpinx . .	Removal of both uterine appendages.	25	1 day.	Good convalescence	A.	P.	R.	Jan. 20, 1892.
60	Mrs. S., Jan. 21, 1892.	48	M.	0	0	Poor	Carcinoma peritonei.	Exploratory abdominal section.	25	None.	.....	F.	P.	R.	Feb. 17, 1892.

61	Mrs. V., Jan. 29, 1892.	30	M.	3	0	Fair.....	Hematoma of right ovary; left cirrhotic ovary.	Removal of both uterine appendages.	35	None.	Suppression of urine.	F.	P.	R.	Feb. 20, 1892.
62	Mrs. H., Feb. 2, 1892.	26	M.	0	0	Poor.....	Suppurating right intraligamentous ovarian cyst; left hydropsalpinx.	Removal of both uterine appendages; ovarian cyst held one quart of pus.	60	9 days.	Slow convalescence.	F.	.....	R.	Mar. 10, 1892.
63	Mrs. W., Feb. 4, 1892.	22	S.	0	0	Fair.....	Cystic right ovary; salpingitis; menorrhagia.	Removal of right uterine appendage; left appendage previously removed for same trouble.	20	None.	Good.....	A.	P.	R.	Feb. 24, 1892.
64	Mrs. S., Feb. 15, 1892.	27	M.	1	0	Poor.....	Endometritis fungosa; cystic ovaries; unsalpingitis; uncontrollable hemorrhages.	Curetting and removal of both uterine appendages.	40	1 day.	Good.....	A.	P.	R.	Mar. 6, 1892.
65	Mrs. L., Feb. 17, 1892.	40	M.	0	0	Anemic....	Fibroma uteri.....	Exploratory abdominal section.	25	None.	Double ether pneumonia.	F.	P.	R.	April 1, 1892.
66	Mrs. A., Feb. 23, 1892.	30	M.	0	0	Fair.....	Left pyosalpinx and suppurating intraligamentous ovarian cyst.	Removal of left tube and cyst.	150	3 days.	Uncomplicated.	F.	P.	R.	Mar. 6, 1892.
67	Mrs. G., Feb. 25, 1892.	35	M.	5	6	Poor.....	Double pyosalpinx...	Removal of both uterine appendages.	50	3 days.	Convalescence slow.	F.	Suppurating wound.	R.	Mar. 25, 1892.
68	Mrs. R., Mar. 7, 1892.	42	M.	...	...	Poor.....	Right ovarian cyst containing one gallon of fluid.	Removal of both uterine appendages.	40	None.	Uninterrupted.	A.	Stitch-hole abscess.	R.	Apr. 7, 1892.
69	Mrs. A., Apr. 4, 1892.	30	M.	0	0	Fair.....	Right pyosalpinx....	Removal of right tube.....	60	2 days.	Uncomplicated.	A.	P.	R.	May 3, 1892.
70	Miss G., Apr. 9, 1892.	21	S.	1	0	Good.....	Double ovaritis; salpingitis with extensive adhesions.	Removal of both uterine appendages.	35	2 days.	Uncomplicated.	A.	P.	R.	May 17, 1892.

No.	Date.	Age.	M., W.	Par.	Mis.	Condition.	Disease.	Operation.	Time (in minutes).	Drain.	Course.	Temp.	Union.	Result.	Discharged.
71	Mrs. T., May 5, 1892.	22	M.	1	0	Good	Right ovarian tumor; left cystic degenerated ovary and adherent tube.	Removal of tumor and both uterine appendages.	40	1 day.	Uncomplicated.	A.	P.	R.	June 2, 1892.
72	Mrs. O., May 16, 1892.	20	M.	2	0	Fair	Right ovarian cyst; left degenerated ovary.	Removal of tumor and both uterine appendages.	30	None.	Uncomplicated.	A.	P.	R.	June 12, 1892.
73	Miss M., May 19, 1892.	24	S.	0	0	Very bad.	Suppurating ovarian tumor; double pyosalpinx.	Removal of tumor and both uterine appendages.	75	Yes...	Patient died from exhaustion; no signs of signs of peritonitis except vomiting.	F.	.. . . .	D.	.....
74	Mrs. T., May 26, 1892.	29	M.	0	0	Fair	Ovaritis	Removal of left uterine appendages.	25	None.	Uncomplicated.	A.	P.	R.	June 26, 1892.
75	Mrs. G., June 16, 1892.	36	M.	5	6	Poor	Ventral hernia	Herniotomy	35	None.	Uncomplicated.	A.	P.	R.	July 12, 1892.
76	Mrs. C., June 16, 1892.	32	M.	0	1	Anemic	Chronic salpingitis with marked adhesions; ovaritis.	Removal of both uterine appendages.	40	None.	Uncomplicated.	A.	P.	R.	July 18, 1892.
77	Mrs. N., June 25, 1892.	40	M.	2	0	Poor	Chronic ovaritis; salpingitis; dense adhesions; retroflexion	Removal of both uterine appendages; hysterorraphy	45	2 days.	Uninterrupted.	A.	P.	R.	July 27, 1892.
78	Mrs. T., June 25, 1892.	26	M.	3	0	Fair	Ruptured left tubal pregnancy.	Removal of both uterine appendages.	35	None.	Uncomplicated.	A.	P.	R.	July 22, 1892.
79	Miss W., July 4, 1892.	30	S.	0	0	Fair	Retroflexion; chronic salpingitis; dense adhesions.	Removal of left uterine appendage; hysterorraphy.	35	1 day.	Uncomplicated.	A.	P.	R.	Aug. 3, 1892.

80	Mrs. B., July 4, 1892.	40 M.	4	6	Poor..	Double hydrosalpinx with small ovarian cyst.	Removal of both uterine appendages.	40	5	Uncom- plicated.	A.	P.	R.	July 30, 1892.
81	Mrs. B., July 9, 1892.	40 W.	4	0	Worn.....	Large, soft fibroid...	Abdominal section; hysterectomy.	75	None	Slow con- valescence	A.	Slough- ing from stump.	R.	Aug. 17, 1892.
82	Miss S., July 13, 1892.	25 S.	0	0	Bad	Tubercular peritonitis; large effusion.	Abdominal section and evacuation of fluid.	30	None	Slow con- valescence	F.	P.	R.	Aug. 19, 1892.
83	Mrs. L., July 20, 1892.	52 M.	Nul- lipa- ra.	0	Fair.....	Left femoral hernia; sacculation of sac, forming cyst.	Herniotomy; removal of sac and cyst; radical operation.	60	None	Uncom- plicated.	A.	P.	R.	Aug. 6, 1892.
84	Mrs. T., July 25, 1892.	30 M.	3	0	Fair.....	Chronic ovaritis and salpingitis; dense adhesions.	Removal of both uterus and appendages.	40	None	Uncom- plicated.	A.	P.	R.	Aug. 3, 1892.
85	Miss H., July 26, 1892.	18 S.	0	0	Good.	Catarrhal appendicitis.	Abdominal section; vermiform appendix removed.	35	None	Uncom- plicated.	F.	P.	R.	Aug. 23, 1892.
86	Miss M., Aug. 1, 1892.	20 S.	0	0	Fair.....	Right ovarian cyst; double salpingitis with adhesions; hystero epilepsy.	Removal of both uterine appendages.	35	1 day.	Uncom- plicated.	A.	P.	R.	Sept. 30, 1892.
87	Mrs. O., Sept. 7, 1892.	20 M.	0	1	Poor	Large hemorrhage in left horn; biliary pregnant uterus.	Exploratory section; hemorrhage supposed to be in peritoneal cavity.	30	None	Abortion following operation	F.	P.	R.	Sept. 29, 1892.
88	Miss T., Sept. 13, 1892.	19 S.	0	0	Worn; has been in bed 7 weeks.	Double salpingitis; left ovarian cyst suppurating.	Removal of both uterine appendages.	50	.....	Slow con- valescence	F.	Suppu- rated.	R.	Oct. 17, 1892.
89	Mrs. D., Sept. 14, 1892.	42 M.	8	3	Fair	Tumor of right kidney, malignant.	Exploratory section	25	None	Uninter- rupted.	A.	P.	R.	Oct. 14, 1892.
90	Mrs. C., Sept. 28, 1892.	26 M.	0	0	Good.	Pregnancy; flat pelvis.	Elective Cesarean section...	60	None	Uninter- rupted.	A.	P.	R.	Oct. 26, 1892.
91	Miss O., Oct. 3, 1892.	23 S.	0	0	Poor.....	Double pyosalpinx...	Removal of both uterine appendages.	35	3 days.	Wound sloughed.	F.	Suppu- rated.	R.	Nov. 30, 1892.

No.	Date.	Age.	M., S., W.	Par.	Mis.	Condition.	Disease.	Operation.	Time (in minutes).	Drain.	Course.	Temp.	Union.	Result.	Discharged.
92	Mrs. W., Oct. 6, 1892.	42	M.	4	0	Fair.....	Tubercular peritonitis; double tubercular pyosalpinx.	Removal of both uterine appendages.	40	1 day.	Slow	F.	Suppurated.	R.	Nov. 5, 1892.
93	Miss R., Oct. 10, 1892.	28	S.	0	0	Fair.....	Double pyosalpinx.	Removal of both uterine appendages.	35	1 day.	Uninterrupted.	A.	P.	R.	Nov. 22, 1892.
94	Miss E., Oct. 21, 1892.	26	S.	0	0	Fair.....	Ventral hernia	Abdominal section; excision of ring; buried silk-worm-gut sutures.	45	None.	Uninterrupted.	A.	P.	R.	Nov. 22, 1892.
95	Mrs. B., Oct. 27, 1892.	33	M.	1	0	Fair.....	Small fibroid; right ovarian cyst; left ovaritis.	Removal of both uterine appendages.	35	None.	Uninterrupted.	A.	P.	R.	Nov. 27, 1892.
96	Mrs. H., Oct. 27, 1892.	24	M.	2	0	Fair.....	Ventral hernia	Herniotomy	40	None.	Uninterrupted.	A.	P.	R.	Nov. 30, 1892.
97	Mrs. DeM., Nov. 3, 1892.	28	M.	3	0	Worn	Right ovaritis and salpingitis; reflex dyspepsia.	Removal of right tube and ovary.	35	None.	Uninterrupted.	A.	P.	R.	Dec. 22, 1892.
98	Mrs. G., Nov. 10, 1892.	45	M.	3	0	Worn	Chronic ovaritis and salpingitis; chronic invalidism.	Removal of both uterine appendages.	30	None.	Uninterrupted.	A.	P.	R.	Dec. 7, 1892.
99	Mrs. H., Nov. 10, 1892.	35	M.	0	0	Worn	Double pyosalpinx ..	Removal of both uterine appendages.	45	1 day.	Suppuration of pelvis after first week.	F.	P.	R.	Dec. 13, 1892.
100	Miss Q., Dec. 6, 1892.	25	S.	0	0	Good . . .	Double pyosalpinx; abscess of both ovaries; universal adhesions.	Removal of both uterine appendages.	..	17 days.	Suppuration in pelvis.	F.	Suppuration.	R.	Feb. 4, 1893.

flooded with blood, which ran out of the abdomen in a great stream. I immediately ligated the ovarian artery by passing a needle and suture, by touch, through the outer end of the broad ligament, and tying it. This controlled the bleeding sufficiently to sponge the blood away. The uterine end of the broad ligament was then ligated, and a row of interlocking sutures passed through the broad ligament. This controlled the bleeding completely. It was not possible to remove all the cancerous material, which fact doubtless explains the patient's death from septic peritonitis on the seventh day. Irrigation and glass drainage were used. In such a case I would use the Mikulicz drain now.

Case 43, primipara, age 30, in fair condition, was operated on for hydro- and hematosalpinx. Quick operation; irrigation and drainage. Hemorrhage into the peritoneal cavity took place during the first twenty-four hours, not sufficient, however, I thought, to necessitate reopening the abdomen. The patient died of septic peritonitis on the fourth day.

Case 54, age 28, primipara, was in poor condition. The case has been referred to under the head of exploratory sections. She died from peritonitis.

Case 73, age 24, nullipara, bed-ridden, and markedly emaciated. Was operated on for suppurating ovarian tumor and double pyosalpinx. She died from exhaustion. No autopsy was allowed, but she had no evidence of peritonitis, except vomiting.

Of the six deaths, four were due to delay. A reasonably early operation would have saved them. Of the other two, one might have been saved had the abdomen been reopened promptly and the blood washed out; the other was a desperate case and would probably have died even if the operation had not been abandoned.

Deaths in abdominal surgery are almost always due to delay in operating. The same is true of post-operation pain and invalidism. When the profession awakes to this fact the mortality in abdominal surgery will be reduced to one or two per cent for all cases, and the percentage of perfect cures by operation will be improved still more.

On pages 633 to 648 is a table of the celiotomies, which has been prepared by Dr. H. E. Applebach, assistant surgeon to the hospital.

COLPO-HYSTERECTOMY FOR MALIGNANT DISEASE—SOME
CONSIDERATIONS IN REGARD TO THE OPERATION,
TECHNIQUE, ETC.

WITH A REPORT OF MY FIRST FIVE CASES.¹

BY

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Later Statistics.—The immediate mortality in colpo-hysterectomy for cancer continues to diminish. In 1886 A. Martin gave the statistics of vaginal hysterectomy as three hundred and eleven cases with forty-seven deaths, that is, 15.1 per cent; at the same time the death rate for breast amputation was 15.6 per cent. When Tannen reported the work of the Breslau Clinic the mortality in the first sixty cases was 11.6 per cent; in the last forty-three cases 6.9 per cent. Thus statistics everywhere are showing continually a better per cent; and with increased knowledge of the operation, and opportunities of judging of the condition of patients, there will be increasingly better results. When Dr. Wm. Duncan presented his paper on "Total Extirpation of the Entire Uterus" to the London Obstetrical Society, January 14th, 1885, reporting two cases, one death in twelve hours, every speaker who took part in the discussion agreed with Dr. Duncan in condemning the operation as unjustifiable, except two, Sir Spencer Wells and Dr. Graily Hewitt. At the close of the discussion Dr. Duncan² expressed himself as feeling sure that further experience would never bring the mortality down from 28.6 per cent to that which follows supravaginal amputation, 7.5 per cent.

This assertion is being every day disproved by the recent work of many operators. Joseph Price³ reported fifty-four cases, with one death; Gill Wylie, thirty-one cases, with one death; H. J.

¹ Concluded from p. 540.

² Transactions of Obstetrical Society of London, January, 1885.

³ Annals of Gynecology and Surgery, June, 1892.

Boldt,¹ forty-four cases, with three deaths; F. Krug,² fifteen operations done from June, 1888, to March 9th, 1889, with one death; E. W. Cushing,³ thirty-eight cases, with one death of those under his immediate care; Charles A. L. Reed,⁴ Cincinnati, eleven cases, with one death; Dr. T. A. Reamy,⁵ nine cases, with one death. Probably in the next fifty of each of these operators there will be no deaths.

J. Sinclair,⁶ Manchester, England, in his last twenty-one cases had only one death; James Braithwaite, in twelve cases, one death. In 1889 Kaltenbach reported sixty-two cases of total extirpation of the uterus, with two deaths; Leopold, one hundred and ten cases, with six deaths; Schauta reported sixty-five cases, with five deaths; Fritsch, sixty cases, with an immediate mortality of seven; Münchmyer, eighty operations, with four deaths. At the Third Congress of the German Gynecological Society, held in Freiburg in June, 1889, Münchmyer⁷ reported that, in one hundred and sixty cases of total extirpation of the uterus performed at Dresden between the years 1883 and 1889, the total mortality was 5.4 per cent. Of the one hundred and twelve operations, fifty-two were performed in succession without a single death; in eighty, only four of the patients died from the effects of the operation. Greig Smith⁸ says: "Brennecke has had eighteen cases and Staude sixteen, all successful; Fritsch lost seven out of sixty, Martin eleven out of sixty-eight; Bull, of New York, five cases, one death. It will therefore be seen that in skilful hands the operation is far from being unjustifiable on account of its mortality."

Thus hysterectomy for cancer may become *a comparatively safe operation*, and by it the patients may be entirely cured of cancerous or malignant disease. The practical question now presents itself: *Can malignant disease be as successfully removed by high amputation as by entire extirpation?*

¹ AMERICAN JOURNAL OF OBSTETRICS, October, 1892, p. 540, "Vaginal Hysterectomy for Cancer of the Uterus."

² AMERICAN JOURNAL OF OBSTETRICS, 1891.

³ Annals of Gynecology and Surgery, June, 1892.

⁴ Transactions of American Association of Obstetricians and Gynecologists 1890.

⁵ Gynecological Transactions, 1888, p. 205.

⁶ British Medical Journal, November 8th, 1890, p. 1065.

⁷ Transactions Obstetrical Society of London, 1890, p. 159.

⁸ "Abdominal Surgery," second edition, p. 209.

If we could be certain that the malignant growth was confined to the cervix, then high amputation might be considered; but by what knowledge or insight can we know this? How can the surgeon possibly tell that the disease is limited to the cervix and has not extended beyond? Is there any way for him to find this out? Even if, to the naked-eye appearances, the disease is limited to the cervix, there may still be independent nodules and cancer nests in the fundus: when apparently only a part of the cervix is affected, profound disease may be in other portions of the uterus. This has been repeatedly seen and emphasized by great surgeons both in this country and in Europe. Many instances are recorded where the disease in the cervix was comparatively slight, and even surrounded with healthy tissue, yet in the fundus there were malignant formations even more advanced and more serious. So when cancerous disease is found in any part of the uterus the only safe procedure is to remove the whole organ. H. J. Boldt¹ says: "The entire uterus should be removed, even if seemingly the disease is only in its beginning at the portio or cervix." Cushing:² "It is not possible to decide how far up in the uterus the disease has extended." Thomas Keith:³ "I never hesitate between the partial and complete removal: for all we know, there may be cancerous nests in the very fundus, even though the disease may seem to the eye quite local and limited." N. T. Brewis:⁴ "I would always advocate hysterectomy in preference to partial removal, for in removing the cervix alone we may leave behind an infected body." Krug:⁵ "It is absolutely impossible to determine the extent of the disease before or even during this operation. I do not think we are allowed to do so imperfect and unreliable an operation as high amputation." E. E. Montgomery⁶ says: "We cannot, however, but coincide with the opinion of Brennecke that when any portion of the uterus is the seat of cancer, however slight, extirpation of the whole uterus is indicated." Reed⁷

¹AMERICAN JOURNAL OF OBSTETRICS, October, 1892, p. 534.

²AMERICAN JOURNAL OF OBSTETRICS, April, 1892, p. 436.

³British Medical Journal, January 10th, 1891, p. 58.

⁴Edinburgh Medical Journal, p. 1003.

⁵Transactions of the American Association of Obstetricians and Gynecologists, 1890.

⁶Transactions of the American Association of Obstetricians and Gynecologists, 1889, p. 141.

⁷Buffalo Medical and Surgical Journal.

says: "If careful pathologists find it extremely difficult to make out the marginal lines by means of powerful lenses in the leisure of the laboratory, how impossible for the naked eye in the necessary hurry of the operating room!" George M. Gould¹ says: "Carcinomatous nodules have been found in the body of the uterus when apparently the cervix was infected with but the very earliest stages of the disease." Richelot² repeats the fact that when the disease was apparently limited to the cervix secondary nodules were found in the corpus uteri, and reported illustrative cases. Polk³ says: "Within the limits, the operation was the only one to do; it is not worth while to consider any other procedure."

In my microscopical investigations I have often seen the lymphatics stretching along through the tissues, conveying their burden of epithelia far away from the seat of origin, and depositing portions at varying points, which become new centres of infection. No one can say how far these lymphatics have travelled, what has been their course, or where the deposits have been made. There is no method by which we can possibly tell how far the cancerous disease has advanced. With this doubt, this dread uncertainty, will any one dare remove only a part of the uterus, and possibly leave the most flagrant portion of the disease? Can we subject a patient to so great a risk with so dangerous a possibility? Yet no doubt, in innumerable instances, by high amputation all the disease has been removed. As an operation it has doubtless done great good, saved the lives of many, and the operation has been sanctioned and practised by some of our most eminent surgeons.⁴ Still, must there not always be with it an increased cause for uncertainty?

Probably *the strongest reason in favor of total hysterectomy* is the fact that around every *malignant growth there is an inflammatory infiltration*. Virchow⁵ says: "Three to five lines be-

¹ Medical News, December, 1888, p. 702.

² Nouvelles Archives d'Obstétrique et de Gynécologie, 1892.

³ AMERICAN JOURNAL OF OBSTETRICS, 1891, p. 878.

⁴ One case remained free from recurrence nine years after an operation by Dr. Sims in the Woman's Hospital. In 1882 Dr. Baker reported that "out of ten cases operated upon by high amputation, when the diagnosis was confirmed by the microscope, six were alive after four years; after ten years, five of them, or fifty per cent, were alive and perfectly well" (AMERICAN JOURNAL OF OBSTETRICS). Both Dr. Sims and Dr. Baker have done most excellent work and deserve the thanks of all.

⁵ "Cellular Pathology."

yond the apparent limits the tissues are already in a state of disease and exhibiting the first traces of a new zone." I have over and over again seen this inflammatory infiltration, have marked out the zone, and with high powers of the microscope have many times demonstrated beyond doubt that the inflammatory corpuscles of this zone were changing to cancer epithelia; from being round they were becoming polyhedral in form. I have repeatedly watched this marvellous change into cancer epithelia. This *inflammatory zone is really cancerous in its nature*, and no operation for the removal of the tumor is complete unless all the zone of inflammatory infiltration is removed. This is the only safe method; and in case of cancer of any part of the uterus it becomes almost a necessity to remove the whole organ. When all the surrounding inflammatory infiltration is not taken away the disease surely returns, or rather continues. As verifying this, it has been repeatedly noted and stated by observers that recurrence almost uniformly takes place near the cicatrix. Heidenhaim says: "The recurrences are on the margin of the old incision." J. Marshall,¹ of London, says: "The new growth is exactly between the cicatrix and healthy tissue." H. C. Coe² has observed that "the early recurrence of the disease is nearly always at the border of the cicatrix." Virchow³ has also stated that recurrence usually takes place in this zone.

The almost uniform recurrence so near the original disease is doubtless because all the zone of small cellular infiltration had not been removed. This surrounding infiltration is part and parcel of the abnormal growth, is cancerous in its nature, and should invariably be included with the tumor in any operation that may take place. Surgeons have long recognized that for the safety of a patient a large area of tissue around a growth should be condemned. Macewen⁴ says: "There is tissue, beyond the mere hard border of the tumor, which is already implicated by epithelial elements." J. Sims Woodhead⁵ says: "From a careful microscopical examination of many hundreds of cancer, I am firmly of the opinion that many surgeons make the mistake of

¹ British Medical Journal, November 23d, 1889, p. 1144.

² AMERICAN JOURNAL OF OBSTETRICS, June, 1890, p. 594.

³ Archives.

⁴ Glasgow Medical Journal, 1886, p. 289.

⁵ British Medical Journal.

not removing sufficiently freely either the tissues in which a cancerous growth has made its appearance, or the lymphatic glands associated with the organ in which the cancer is developed." Shrady¹ says in unmistakable words: "I am firmly convinced that operations, as a rule, are not radical enough to insure a complete and thorough removal of the disease." Butlin² says: "It is always necessary to remove some of the surrounding tissue, in some instances a very wide area, in order to prevent a recurrence of the disease." J. Marshall,³ of London, repeats: "Do not be timorous and hesitating, do not care about a scar, but sweep away to a great distance; it does not matter about deformity—it is the preservation of the patient's life."

Sir Spencer Wells⁴ remarks: "It will sometimes be the painful duty of the surgeon to urge upon a patient to sacrifice a limb in the hope of saving life; and if this advice is followed before infection of the glands has taken place the result has often proved the soundness of the advice: while too great delay, or want of earnestness in urging submission to so serious an alternative as the loss of a limb must always be, may lead to protracted suffering and inevitable death."

With these considerations, and especially recognizing the inflammatory infiltration that is around every malignant growth, the boundaries of which we cannot tell, does it not follow that in every case of cancer of the cervix complete hysterectomy becomes the only safe and conservative procedure? Keith⁵ says: "No one nowadays thinks of removing a bit of cancerous mamma." E. E. Montgomery,⁶ of Philadelphia, asserts "that in all cases of cancer, when confined to the uterus, whether of the body or cervix, vaginal hysterectomy is the only justifiable operation."

Entire hysterectomy is not only a safer procedure as to removing all the disease, but it may be made almost as simple an

¹ Medical Record, January, 1887.

² "Operative Surgery for Malignant Disease." By H. C. Butlin, Professor of Pathology in the Royal College of Surgeons, London.

³ "Morton Lectures on Cancerous Diseases," November 23d, 1889.

⁴ British Medical Journal, December 8th, 1888, p. 1266. "The Morton Lectures on Cancer and Cancerous Diseases," delivered at the Royal College of Surgeons, England, November 29th, 1888.

⁵ British Medical Journal, January, 1889, p. 57.

⁶ Transactions of the American Association of Obstetricians and Gynecologists, p. 194.

operation as high amputation. Indeed, in many instances it is less difficult, attended by less danger, less shock, has a more rapid convalescence, the wound heals more promptly, and, finally, this operation gives more certain results as to a permanent cure. Schatz, who has performed both operations, wrote in 1883: "The danger of high amputation does not seem to be much smaller than total extirpation." C. A. L. Reed,¹ of Cincinnati, says: "High amputation is a more difficult and more dangerous operation than vaginal hysterectomy." E. W. Cushing² says: "Total extirpation is not more difficult and very little more dangerous than the really high amputation of the cervix, and it affords greater immunity from relapse." Krug³ says: "I cannot concede that high amputation, done in the proper way, is, as a rule, a less difficult operation than vaginal hysterectomy. I like to be seen in the front rank of aggressive surgery whenever malignant disease is conceded." J. E. Janvrin,⁴ with regard to high amputation and vaginal hysterectomy in cancer of the uterus, says he has found the latter operation decidedly easier to perform. Prof. Sinclair,⁵ of Manchester, states that "although vaginal hysterectomy is called major, it is perhaps less dangerous than some of the so-called minor operations." Fatal primary hemorrhage has followed excision of the cervix uteri. T. A. Emmet⁶ says "he has removed the cervix in several cases in which the hemorrhage was as profuse as a post-partum hemorrhage; in one case the blood ran through the bed and upon the floor." Krug⁷ finds "it is more difficult to control hemorrhage in high amputation." Coe says "in one of his cases the hemorrhage which arose when he started to do high amputation proved so great that he abandoned the procedure." Franklin H. Martin,⁸ of Chicago, says: "The most tedious operations which I have seen in surgery have been amputations for cancer of the cervix. The most bloody have been these same operations. I believe the mortality of vaginal hysterectomy will soon become

¹ Buffalo Medical and Surgical Journal.

² AMERICAN JOURNAL OF OBSTETRICS, April, 1892.

³ Ibid., p. 621.

⁴ Ibid., 1890, p. 646.

⁵ London Lancet, May 17th, 1890.

⁶ AMERICAN JOURNAL OF OBSTETRICS, Supplement, March, 1882, p. 68.

⁷ Ibid., 1890, p. 635.

⁸ "A Plea for Early Vaginal Hysterectomy for Cancer of the Uterus." Journal of the American Medical Association, January 21st, 1891.

so low that the unsurgical procedure of high amputation for cancer will be considered no longer justifiable." He further says: "Vaginal hysterectomy is the most justifiable surgical procedure we yet know of for the cure of cancer of the uterus." J. C. Cullingworth,¹ of London, stated that, after careful study of vaginal hysterectomy in Germany and high amputation in England, he had found that the mortality of the former was five per cent, while that of the latter was seven per cent.

Martin² says: "Out of twenty-eight women on whom I have operated only two have remained free from relapse for somewhat over a year, and have then in a short time succumbed to the disease, although I repeatedly excised and destroyed the incipient recurrence most thoroughly." Hofmeier has forty-five per cent of permanent recoveries from high amputation, while Martin, from entire extirpation, has seventy per cent. John Williams says: "Supravaginal amputation gives better results"; yet Williams did supravaginal amputation four times, and the only patient who recovered died a month after of fecal fistula high up in the small intestines. Krug³ goes still further, saying: "To my mind there is absolutely no place for high amputation in cancer of the womb. As compared with vaginal hysterectomy, it is more unreliable, more difficult, and more dangerous."

The constitution of a woman seems to be more tolerant of hysterectomy than of any other grave operation connected with the pelvis or the abdomen. After this operation I have seen patients lie perfectly at ease, comfortable, and as if relieved, reminding one of Schröder's remark that "a woman, after total extirpation of the uterus through the vagina, resembles rather a puerpera after a post-partum hemorrhage than a patient who has just experienced a severe operation." T. Gaillard Thomas⁴ tells of "a young woman who had given birth to a child eight years previously. While making a violent effort at rolling tennis, suddenly felt something give way within her, after which she suffered the most intense pain. Dr. Willard Parker, being called to see her, coincided with the opinion of the attending physician that a polypus had been suddenly expelled and was hanging in the vagina. He removed the whole mass, when, to

¹ Transactions of the Obstetrical Society of London.

² Annals of Gynecology.

³ Transactions of the American Association of Obstetricians and Gynecologists, p. 201.

⁴ "Diseases of Women," 1868, p. 339.

his surprise, he found he held in his hand the inverted uterus with its tubes and ligaments. The patient recovered without any bad symptoms." I am informed upon reliable authority that a woman in Maine, long annoyed with the protruding organ, one day, in her desperation, seized a knife and cut it off. She held the cut tissues firmly till hemorrhage ceased, then went on with her hoeing, and suffered no after-inconvenience.

Even if high amputation were as efficient and attended with no possible danger, where could be the advantage of leaving a portion of the uterus? Can it in any way be of any service? Is it not an added danger? Some say "it may give a woman a chance of conception." That would certainly seem a sufficient reason, but such parturitions are apt to result in the death of the mother as well as the loss of the child.

Dr. A. Vander Veer,¹ of Albany, N. Y., in his paper on the management of cancer complicated with pregnancy, said: "Out of nearly three hundred women suffering from cancer of the uterus and in labor, fifty-two per cent died undelivered or never left their beds; and of children only thirty-three per cent were born living, hardly twenty per cent lived until the mother left the childbed." Dr. Vander Veer therefore concludes that total extirpation should be the rule and the operation should be done at the earliest moment.

It is also to be noted that pregnancy, or any change of tissue or inflammatory action, causes the malignant disease to advance more rapidly, and labor at term may be accompanied by the most disastrous consequences. In 1886 Dr. Charles Jones was called to a case of confinement. The cervix was one hard mass of firm, unyielding cancerous infiltration. Dr. J. R. Goffe was in consultation. The physicians did everything possible to save the patient, but finally had to resort to abdominal section. Both mother and child perished. If hysterectomy had been done early in gestation the mother, at least, would have been saved. The child would have been lost in either case.

C. A. L. Reed² tells of a similar instance: "Numerous incisions were made in the cervix, forceps were applied, labor completed. Mother and child alike perished." In the British Gynecological Society, November 13th, 1889, Dr. B. Fenwick³ showed a preg-

¹ New York Journal of Gynecology and Obstetrics, July, 1892.

² Buffalo Medical and Surgical Journal.

³ British Gynecological Journal.

nant uterus, at about the third month, removed by hysterectomy for cancer of the cervix. "Two years previously the cervix had been canterized; six months later malignancy became more manifest and the cervix was amputated. Six months after the patient was found to be two months pregnant. It was decided to induce abortion, but it was impossible to discover any trace of a cervical canal in the hard remnant of the cervix."

Dr. Coe,¹ in his article, observes: "As soon as a diagnosis of a malignant growth is rendered certain, total extirpation of the uterus should be performed without delay." He goes further and says: "With the results of modern aseptic surgery before us, we are not justified in waiting until the diagnosis has been established beyond the shadow of a doubt and the patient's health has been seriously undermined before we decide upon radical measures. I need only call attention to the fact that I performed total extirpation of the uterus in Cases 1 and 2, although by no means certain that I should find malignant disease, and was much relieved to find my suspicions were justified."

Many operations have been performed when it was not certainly known that the disease was malignant. Krug states that "he operated on one case in which there was a doubt about the diagnosis." Dr. James B. Hunter² reported to the New York Obstetrical Society, December 20th, 1887, that "he had suspected malignancy and so had performed vaginal hysterectomy; that the specimen had not then been examined by the microscope." Dr. Baldy,³ of Philadelphia, says: "It is fast becoming the habit to operate on all suspicious cases." Jonathan Hutchinson⁴ said: "I have held that cancer is, in its beginning, a local disease, and to recommend operations so early that they might almost rank as anticipatory." The absence of pain, the absence of hemorrhage, or the absence of offensive discharges does not necessarily prove there is no malignant disease. E. E. Montgomery says: "The uterus should be removed on suspicion; that, when there is a doubt which cannot be solved, the patient should have the benefit of this doubt." Also, that he has removed some that were afterward found not to be cancerous. Haché

¹ AMERICAN JOURNAL OF OBSTETRICS, June, 1890.

² AMERICAN JOURNAL OF OBSTETRICS, February, 1888.

³ Annals of Gynecology.

⁴ Glasgow Medical Journal, 1886, p. 338.

makes mention of similar instances. "Pichevin,¹ in a clinical lecture, showed an interesting case in which an ulceration of the cervix uteri had been diagnosticated as commencing epithelioma, and cauterized. The marked induration of the cervix and the decline of the patient's health seemed to confirm the diagnosis, and hysterectomy was advised. A bit of the tissue was excised for microscopical examination, and it was found not to be malignant. The true condition had been masked by cauterization." Dr. Coe² says "he has examined uteri removed by eminent surgeons in this city in which there was no malignant disease at all, the condition being simple erosion of the cervix." He said at the meeting of the American Gynecological Society, September, 1892, that "he had examined several uteri removed for supposed cancer which did not exist." Landau³ admits that "he as well as other surgeons knows of cases of removal of the uterus for beginning epithelia of the cervix in which the condition was found to be simple erosion, and of other cases in which adenoma or intra-uterine polypus was mistaken for corporeal epithelioma."

Better remove a few with no malignant disease than to leave one cancerous uterus, and a patient with the awful risk of dying from a condition that the surgeon could have remedied. T. A. Emmet,⁴ speaking of cancer of the uterus, said: "In this disease there should be no delay in operating, and the patient should always have the benefit of a doubt and be relieved of any suspicious growth." There is one way to settle the question as to malignancy and clear up all doubt, and that is by a microscopical examination. *Such examination should in every instance be made.* It will prevent all mistakes and possibly subsequent regrets." Schatz⁵ says: "In the beginning a malignant growth cannot be distinguished from an extensive erosion," so he advises that a piece of the cervix should be excised and examined microscopically.

I had one case which gave, in the history, symptoms, and naked-eye appearances, every indication of being malignant. The woman was 50 years of age; had an indurated, ulcerated cervix

¹ Nouvelles Archives d'Obstétrique et de Gynécologie, 1892, No. 2; quoted from H. C. Coe, American Journal of Medical Sciences, July, 1892.

² AMERICAN JOURNAL OF OBSTETRICS, 1890, p. 645.

³ American Journal of Medical Sciences, October, 1889.

⁴ "Principles and Practice of Gynecology," p. 514.

⁵ Zeitschrift für Geburtshilfe und Gynäkologie, Band xiii., Heft 1.

and bloody discharges. I had no doubt of malignancy; but, as is my uniform rule, I submitted a portion of the diseased tissue to a careful microscopical examination. The disease proved to be benign, and the subsequent history of the patient confirmed the diagnosis. Without the microscopical examination I should certainly have considered it my duty to have removed the uterus. The patient submitted entirely to my judgment, as every patient for whom I have ever performed an operation has done.

In many cases it is impossible to tell certainly without a microscopical examination. Dr. Playfair¹ mentions an instance where, "a soft, fungating mass of malignant disease filling the uterine cavity, he suggested the possibility of extirpation. Three years after he met the lady's medical attendant, who stated that she was then well and in comparative good health." A short time since Dr. Charles N. D. Jones, in New York, for prolonged and repeated hemorrhages, curetted a uterus, after which the patient seemed to be doing well, hemorrhage stopped, and he and the attending physician supposed she would have no further trouble. Still, Dr. Jones had the scrapings examined microscopically. This was done by Dr. C. Heitzmann; the disease proved to be small round-celled sarcoma. A few days after, when the uterus was successfully removed, the sarcoma was found to be located in the fundus near the entrance of the left Fallopian tube. But for this microscopical examination the woman would have perished. She is now doing well.

John Williams,² in the Harveian lectures, describes cases of the disease in the earliest stages, when the diagnosis was rendered possible only by the microscope. E. W. Cushing³ has well said: "The microscope is of the greatest service. In some cases the diagnosis can only be made by it": adding, when the diagnosis becomes easy, the disease has usually progressed to a state where operation is difficult, or perhaps impossible. Dr. Boldt⁴ expresses the idea that "malignant disease can be positively diagnosed in its early stages only by employing the microscope." Ruge and Veit report numerous cases in which the development of malignant disease of the portio vaginalis was revealed by the microscopical examination of excised bits of the

¹ Transactions Obstetrical Society of London, 1885, vol. xxvii., p. 42.

² British Medical Journal, January 8th, 1887, p. 50.

³ AMERICAN JOURNAL OF OBSTETRICS, April, 1892, pp. 435-437.

⁴ "Vaginal Hysterectomy for Cancer of the Uterus," AMERICAN JOURNAL OF OBSTETRICS, October, 1892.

suspected tissue long before palpation and inspection furnished evidence of the true condition. Wylie¹ says "the first thing he does is to submit portions to a good pathologist for examination." Greig Smith² gives the same advice, and insists that "when diagnosis is doubtful, granulations should be removed and examined by the microscope."

A. Martin,³ of Berlin, says: "The recognition of the early stages occasions very extraordinary difficulties. All the clinical symptoms which are referred to as indicating malignant disease may fail us; no peculiarity of the result of digital examination helps to give the necessary certainty, which at present we can gain only by microscopical examination." He warns against wishing to make a diagnosis based on the results of digital examination and on the clinical symptoms, and says elsewhere: "The possibilities of a diagnosis can only be attained by scraping off pieces of the mucous membrane, as described above, and submitting them to microscopic examination"; adding, "when the presence of carcinoma is indubitably established by the microscope, to perform the extirpation of the whole uterus." Prof. Lane⁴ says: "I verified the disease with the microscope, and in every case it reached much further in than it seemed from the outside."

Dr. Lewis Pilcher⁵ says: "In view of the great difficulties of diagnosis, it must in any case be required in all reports of recoveries that the actual condition be determined by the help of the microscope. The careful surgical statistician of the present and of the future is compelled to exclude from all consideration in his studies and from his conclusions every case in which the character of the diseased tissue removed has not been examined and certified to by a pathologist of recognized position. The lack of such pathological testimony requires us to reject a large proportion of the reports that have hitherto been made of the results of operation."

I agree entirely with Dr. Pilcher. A microscopical examination is essential not only for certain diagnosis and to obtain

¹ International Journal of Surgery, 1891, p. 190.

² "Abdominal Surgery."

³ "Pathology and Therapeutics of the Diseases of Women." By A. Martin. Translated by Ernest W. Cushing. Second edition, p. 310.

⁴ Gynecological Transactions, 1888, p. 207.

⁵ "The Ultimate Results of Operation for Removal of Uterine Appendages."

reliable scientific data, but justice to the patient demands it. Besides, the microscope shows the exact pathological changes that take place in the structure of various organs, and so gives new light as to the nature of disease, and will thereby help in finding a means of prevention and cure. Fully impressed with the seriousness and importance of this subject, I was the more surprised when, on one occasion, I heard a Brooklyn surgeon, Dr. A. J. C. Skene, when asked, "What aid to a surgeon practising gynecology is the microscopical examination"—of two of the most vital structures of woman's genital organization, viz., the tubes and ovaries—answer, "None whatever." "Why not?" "Because you cannot submit them in the living subject to microscopical examination; it is only after they have been removed that they can be examined. It is only an aid for the examination of surfaces; it is utterly useless in ovarian diseases."

Yet all great surgeons the world over are earnestly looking to the teachings of the microscope to know more of the minute anatomy of each and every organ, the pathological changes that may occur, the nature of these changes, so that they may learn more of the etiology of disease, how to prevent, cure it, or check its ravages. All want to help suffering humanity, and all are interested in looking into these teachings. Most of the discoveries in pathological anatomy are from microscopical researches. Indeed, the whole science is founded upon this. By microscopical researches *Virchow's Archives* have reached one hundred and twenty-nine volumes. It is just as interesting to look at the thirty-nine volumes of *Archiv für mikroskopische Anatomie*. Paget, in his "Surgical Pathology," gives repeatedly the microscopical appearances. So Quain largely depends upon the teachings of the microscope for his "Elements of Anatomy." The Morton, the Harveian, and other great scientific courses of lectures, instituted and endowed to increase our knowledge and extend the boundaries of medical science, have sought in the microscope the needed help. When John Williams gave his Harveian lectures on cancer he illustrated the subject by drawings made from the specimens and from microscopical sections. So John Marshall,¹ F.R.S., in his lecture in the Morton course before the Royal College of Surgeons, had the specimens under the microscope, and in speaking of the great mysteries of the subject he said, "Here is work for the

¹ British Medical Journal, November 18th, 1889, pp. 1141-1143.

microscopist," adding that "the most advances had been made through the study of structures. This," said he, "is the mode in which and through which knowledge has been increased in regard to these important diseases"; and still further emphasizing that "it affords the key to the most material advances in regard to the nature of disease."

Oliver Wendell Holmes,¹ a great teacher and for many years professor in Harvard University, as far back as 1861, when speaking in regard to the value of the microscope to the great science of medicine, said: "The microscope has made a new science of the intimate structures of the organs; has at the same time cleared up many uncertainties concerning the mechanism of the special functions. The minute structure of the viscera, the internal recesses of the animal system, were to the students of anatomy what the interior of Africa," etc.

To understand disease, and in many cases to intelligently treat it, we should understand the minute structure of an organ, and the pathological changes as the result of disease.

What are the Limits of Vaginal Hysterectomy?—I have heretofore held that colpo-hysterectomy should not be performed when the malignant disease has extended beyond the organ. I now believe surgeons quite right in removing the uterus for cancer, even though the disease may have extended to other structures; and if all the affected tissue, wherever found, can be removed, a cure may still be effected. In 1884 Dr. Paul F. Mundé² reported to the American Gynecological Society the removal of the uterus for cancer, which was afterward examined microscopically by Dr. C. Heitzmann, who stated: "Sections along the cut surface prove that the mucosa is in a condition of so-called small cellular infiltration, though cancer nests could not be detected"; adding, "should this view be correct, that this infiltration is the preliminary stage of cancer, no doubt recurrence will take place in your case within the next two years." The disease in this patient was again recognized within seven months. Dr. Mundé, in the above-mentioned paper, remarks: "A microscopical examination before operation would have revealed the futility of endeavoring to operate in sound tissue, and would have contra-indicated the operation." Would not a microscopical examination rather have revealed

¹ "Medical Essays," 1883, p. 231.

² Gynecological Transactions, 1884, p. 204

the extent of the disease, and have indicated to the operator how far to have extended his incisions and how much of the tissue was to be removed; and to remove all the infected tissue, even if it required the extirpation of the whole vagina and still further surrounding structures! Prof. John Marshall,¹ of London, says: "Disregard the neatness of an operation, but sweep far away beyond what you really estimate as the seat of the disease." A great surgeon in New York said to me: "When an operation is once commenced make thorough work." Dr. J. E. Janvrin,² in his paper on "Vaginal Hysterectomy," says: "The operation should be performed, even if the disease has extended beyond the uterus, upon the vaginal mucous membrane or vaginal wall, or to the uterine adnexa." Riche-lot:³ "If the disease has extended to neighboring organs it can still be readily removed by piecemeal (*par morcellement*)."

When it is impossible to remove all the diseased tissues, an operation may stay the progress of the disease, prolong the patient's life, and lessen her suffering. Erichsen,⁴ in his work on "Surgery," remarks: "The surgeon may sometimes operate in order to give the patient ease from present suffering, or perhaps with a view of prolonging life, even if he can have little expectation of effecting a cure. I am decidedly of the opinion that, if cancer cannot be actually cured by extirpation, life may be prolonged and health improved by the operation." E. W. Cushing⁵ says: "If the disease shows a tendency to spread toward the vagina there is great liability to recurrence, but that is no reason for not giving a woman her only chance. When it is surmised, but not known positively, that all the disease cannot be removed, the operation ought to be performed."

Schauta considered it questionable whether we should not "give the patient the moral support afforded by an operation, even if we are quite sure that we cannot go beyond the disease." He also questions whether we are not able to prolong life somewhat by diminishing pain and suffering. Mundé⁶ well says

¹ British Medical Journal.

² Medical Record, July 9th, 1892.

³ Revue médico-chirurgicale des Mals des Femmes, December, 1891.

⁴ Eighth edition, vol. i., p. 1004.

⁵ "Vaginal Hysterectomy for Cancer." Read before the Medical Society of the State of New York.

⁶ Gynecological Transactions, 1884, p. 200.

of his case above referred to: "The patient has, I think, been well repaid for the risk she ran; she had little or no suffering after the operation, and enjoyed nearly a year of freedom from hemorrhage, discharge, pain, and disagreeable local treatment"; adding, "were I to meet with a precisely similar case I should give her the same chance for relief." Martin¹ says: "By an operative treatment we undoubtedly best remedy the symptoms of these so-called inoperable cases, and at any rate by this means we uphold the failing courage of these unhappy ones better than by purely medical prescriptions." G. F. Shrady, in speaking of operations for malignant diseases in general surgery, says: "It is better that we run the chance of recurrence than that we take the other alternative of allowing the disease to go beyond us and kill the patient, for recurrence generally means slower growth and less pain. Allowing that the odds are against us, we should not be discouraged in giving our patients their only chance. Practically the operation comes to this. Otherwise our patients must voluntarily resign themselves to the inevitable." Shrady² refers to Weir's report of a case in which the right breast was amputated by James R. Wood in 1856. In 1887 Post amputated the left breast. In 1873 Weir removed a recurrent growth from the right side, and again in 1877 and 1880. The patient finally died of the disease in 1881. This covers a period of twenty-six years.

Operating on hopeless cases may give poorer statistics, but the welfare and comfort of the sick are of more importance than statistics. Besides, a separate table may be made for the recognized hopeless cases, of which there would be fewer if their condition could be known at an earlier period. Yet, in the face of these facts, one author³ has assured us that "other methods of treatment, less dangerous than the extirpation of the uterus, are equally and even more useful."

In so important a matter as this we should know; there should be no uncertain sound; we should be told what is right, and do only the best thing. The same author continues: "The alleviation of pain, the prevention and arrest of hemorrhage, the amelioration of offensive and acrid discharge, the maintenance of the general health, are all indications that may be met to

¹ Annals of Gynecology.

² Medical Record, January 22d, 1887.

³ A. Reeves Jackson, Transactions of American Gynecological Society, 1883

some extent by comparatively harmless means."¹ Are not these symptoms of cancer, and to be met by removing the cause? How shall we alleviate pain? By narcotics? Besides doing the system great injury, are they not playwork in the face of so great an enemy? "Arrest hemorrhages." Are we certain that we can do this? How near may the cancer be to a large artery? I have seen, under the microscope, the cancer destroying the walls of a great blood vessel. How long will a styptic or a tampon prevent its walls from breaking down or stay the march of the deadly disease? "Maintain the general health." This is excellent and should be done by all possible means, but how long can the general health be maintained when cancer is preying upon the vitals?

The author says further: "Other methods than excision of the entire organ—as, for example, the sharp curette, knife, scissors, caustic, cautery, etc.—are capable of doing very much good, lessening suffering, and prolonging life." Certainly we want anything that will "do good, lessen suffering, or prolong life": but are not these procedures attended with danger, and are they always useful? B. Jesset² said: "Caustic in this or any other form of disease is unreliable, and in some cases harmful." Meigs³ says "he has never seen caustics do much permanent good." A. H. Cordier⁴ says: "All escharotics, caustics, and tinkering should be condemned in treating these cases; they never cure, but often make complications." Joseph Taber Johnson⁵ says: "Caustics and minor operations do little good and only prolong the patient's suffering." West and Duncan⁶ say: "As a general rule, partial destruction has been followed by a more rapid development of the disease"—this was said at a time when caustics were trusted and tried faithfully—adding, "I have not been able to attribute to the actual cautery any delay in the progress of the evil." T. S. Lee said: "Caustic is our only resource, but I have never seen

¹ This reminds one of what Graily Hewitt said in 1868, viz.: "There are three conditions to the relief of which our attention is directed, the pain, the hemorrhage, and the discharge, besides maintaining the functions of the body in a state of activity." But Graily Hewitt does not mention these as superseding surgical measures.

² British Gynecological Society, January 23d, 1890.

³ "Diseases of Women," 1868.

⁴ Annals of Gynecology and Surgery, January, 1892, p. 524.

⁵ AMERICAN JOURNAL OF OBSTETRICS, June, 1883, p. 635.

⁶ "Diseases of Women."

it do much permanent good." A. Martin¹ says: "I have now abandoned all caustic applications and use of the actual cautery, in any form whatever, even when the disease is yet entirely localized; I believe that a permanent result cannot be attained, even in the first stages, by any cauterization, however deep."

Wylie² said: "I would never burn this tissue with caustic, with the galvanic cautery, or anything that would destroy the mucous membrane." Martin, of Chicago, says: "When the cautery is employed to its fullest extent it will still fall short of what is accomplished by total removal." H. C. Coe³ says: "The sharp curette or the galvano-cautery, with which we only work in the dark, and incur a certain risk of perforation in the uterine wall, and causing fatal peritonitis." He remarks elsewhere that "he believes, every time that adenoma uteri is attacked with the cautery, it simply returns in a more malignant form; that the use of the galvanic cautery may be less objectionable, but it is a blind procedure." He tells of one of his patients, on whom a palliative operation simply hastened her death; or of another case he says: "There is no doubt that a delay of a few months, with one or two more palliative operations, would have resulted fatally." He quotes Furst as saying that "palliation does more harm than good, simply aggravates the matter."

The electric cautery has certainly the power of destroying the tissue, as has the actual cautery, or as has arsenic, or as have many of the secret cancer preparations. Most of the latter are made up of arsenious acid, and their use is not only tedious but is necessarily accompanied by great distress and suffering. One woman, who I knew was by some secret preparation having a cancer of the mammary gland removed, suffered more at each application than she would have done by the radical operation, and finally she succumbed before the work was accomplished.

When the great John Hunter on one occasion was called upon to decide the propriety of using one of these secret preparations, he put the following question to the maker of the preparation: "What do you intend to do with your medicine?" "To cure the patient." "Let me know what you mean by that? Do

¹ "Pathology and Therapeutics of the Diseases of Women." By A. Martin. Translated by Ernest W. Cushing. Second edition.

² International Journal of Surgery, 1891, p. 190.

³ "The Limit of Vaginal Hysterectomy for Cancer of the Uterus," AMERICAN JOURNAL OF OBSTETRICS, June, 1890, p. 596.

you mean to alter the diseased state of the parts, or do you mean by your medicine to remove the parts diseased?" "I mean to destroy them." "Well, then," said John Hunter, "that is nothing more than I, or any other surgeon, can do with less pain to the patient." Sir Spencer Wells¹ says: "We have no reason to fear a comparison between what we can do by fair and open means and what can really be done by any cancer curer or secret remedy." W. M. Polk² "held that if the cautery would destroy the cancerous disease, the knife would do the same"; adding, "the diseased tissue could be cut out if it could be burnt out." Cancer-cure preparations and cautery all work in the dark and are "blind procedures." John Marshall³ says: "A very sweeping use of the knife is better, I would say, than any cautery, any electricity, any form of temporizing with caustics, with pressure, with cold, or any such means. Electricity, we must remember, will only destroy what it reaches; it will ultimately be regarded as inferior to the knife. The knife, which sounds so cruel but which is not, is the most feasible method of removing these things."

John Byrne,⁴ in 1889, reported to the American Gynecological Society that he had up to that time treated three hundred and sixty-seven cases of cancer of the uterus by the galvano-cautery. He stated that "one hundred and fifty-one, or fifty-four per cent, were lost to observation before the expiration of one year." So the result in nearly one-half the cases is not known. Still we understand that three hundred and sixty-seven women had "cauterization" and more or less "excavation of the uterine cavity." His methods are: "Every part of the cavity should be gone over repeatedly," "the ragged borders of the excavation"; "no raw spots should be permitted to escape the cautery" "till all are charred, regardless of apparent limitations," till there is "an entire excavation and cauterization of the uterus"; then a "firmly rolled tampon should be inserted within the charred cavity." Says Dr. Byrne: "The full extent to which cauterization may be carried with impunity, and short of devitalizing peritoneal or other adjacent structures, I am not prepared to say."

¹ "The Morton Lecture on Cancer and Cancerous Diseases," November, 1889.

² AMERICAN JOURNAL OF OBSTETRICS, 1890, p. 634.

³ British Medical Journal, December, 1888.

⁴ Gynecological Transactions, 1889.

But even though the greater part of the uterus is reduced to a "black char," there may yet be cancer nests. Why not burn a little more, "regardless of apparent limitations," or short of "devitalizing the peritoneal or other adjacent structures" burn even "beyond the supposed danger line," destroying as much of the affected organ as can be safely spared—give "a thorough and fearless cauterization"? Why not at once make it "entire extirpation," and save the patient, though the method may be uncouth and the procedure somewhat unsurgical?

But it is marvellous to me how so many cases of cancer of the uterus could be diagnosed without any microscopical examination. In the whole article I do not read of any reference being made to a microscopical examination, or to his methods of diagnosis, except in one place he remarks: "In all cases of induration, destructive ulceration, or outgrowths of the cervix uteri of a malignant nature, or believed to be so." "Believed to be so." Can that be depended upon as a method of diagnosis? By the microscope we could tell positively. Dr. Byrne says of a case, April, 1879: "She was found to have a rapidly developing carcinoma." How could he know this certainty without a microscopical examination? On the preceding pages he speaks of "a well-marked cancer of the cervix which was removed by the galvano-cautery." If it was "well-marked cancer of the cervix," who could say that cancer had not extended far beyond? Schauta, of Prague, says: "Microscopically and clinically the diagnosis of the boundaries of cancer is impossible"; and he adds, "for this reason a radical operation is always indicated."

Dr. Byrne continues in regard to the preceding patient: "On referring to the hospital records it was found that this patient had been attacked with pelvic pains and hemorrhage five months after her third confinement." Would this necessarily indicate cancer? Do not such symptoms frequently follow lacerated cervix and subinvolution, with possible misplacement of the uterus? And many women so affected may be restored to health by curettage and repairing the puerperal injuries, and so be enabled to have a half-dozen or more children. Charles D. Meigs,¹ the clear diagnostician, an eminent professor in Philadelphia, said in 1859: "I have certainly met, in the course of fifty years, with several cases of diseased uteri which I had the greatest reason to suppose were cancerous, but which yielded

¹ "Diseases of Women," p. 333.

to persevering treatment and ended in perfect recovery of health." Dr. Playfair,¹ in the London Obstetrical Society, said: "He would be a bold man who would venture positively to distinguish between certain changes in the cervix due to hyperplasia, and the early stages of carcinoma."

Dr. Byrne's statistics state: "The disease was limited to the portio vaginalis in fifty-nine cases." How could any one possibly discover or know this? Pozzi says: "No possible method of investigation can tell whether the cancer is limited to the cervix or not." Indeed, after all, have we any proof that all the "three hundred and sixty-seven patients" really had cancer? Dr. Byrne's statistics further state: "The entire cervix was affected in eighty-one." Could any human knowledge say that the disease had not extended beyond? Even if the whole cervix is removed and most of the fundus, "regardless of apparent limitations," cancer epithelia and cancer nests may still be left. Dr. Byrne speaks of amputation by the heated loop or knife at or above the vaginal insertion. T. A. Emmet² says: "Let the operation be done with scissors, but never with the galvanic wire or the *écraseur*. I most strenuously object to these instruments." Dr. Byrne continues: "Amputation of the cervix, high or low, is worse than useless, unless followed by a thorough dry roasting of all the exposed surfaces." Dr. Thomas Keith³ says: "To remove as much of the uterus as possible without opening into the peritoneal cavity, and then to follow up the disease of the cavity by the free use of the cautery, seems to me to be monstrously bad surgery." Erichsen⁴ asserts that "the wound left by the galvanic *écraseur* is more likely to slough, and secondary hemorrhage much more frequently occurs, than after the use of the simple *écraseur*." Mr. Jesset,⁵ in speaking of supravaginal amputation of the cervix, said, December, 1892, "he preferred scissors or the knife to cautery." Dr. Herbert Spencer,⁶ on the same occasion, referring to Dr. Byrne's use of the galvanic cautery, said "he agreed with Mr. Jesset that removal by knife was preferable to removal by cautery or any other method."

In the above remarks I have not intended to criticise Dr.

¹ Transactions of the Obstetrical Society of London, vol. xxvii., p. 42.

² "Principles and Practice of Gynecology," p. 502.

³ British Medical Journal, January, 1891, p. 58.

⁴ Erichsen's "Surgery," vol. i., p. 1009.

⁵ Medical Record, January 7th, 1893, p. 29.

⁶ Ibid.

Byrne's work. I am a learner, earnestly seeking to know the most excellent way. Our aim is to save life. We are desirous to do the best for each and every case. The question is not the operation or the methods, but how we can certainly and most successfully relieve suffering, cure disease, and save from a certain and impending death. I would most assuredly adopt the procedures of Dr. Byrne if I could believe they were best.

Technique of Vaginal Hysterectomy.—This becomes a most interesting and important subject. Dr. Montgomery¹ says: "The methods of operating are almost as many as the number of operators." Prof. P. Müller² says: "The best method for vaginal removal of the whole uterus is still an open question. Two difficulties are met with: one, the long duration of the operation; the other, the uncertainty of controlling hemorrhage." Martin³ says: "It is to be classed as one of the most difficult operative proceedings in abdominal surgery." C. C. Lee said, at the New York Obstetrical Society, December 4th, 1883: "An operation which was at best exceedingly difficult to perform and extremely dangerous to life." The *Lancet* says, March 26th, 1887: "In uterine cancers the operator is always obliged to cut clear of diseased organs through structures which lie in the dark, or are at least difficult of access." Fenger⁴ says: "As the operation itself is so difficult and the time occupied in its performance so great, any suggestion by which the duration of any of the steps of the operation may be shortened and the operation facilitated should be accepted with gratitude. Even under the most favorable circumstances it is a long and difficult operation." Dr. A. Reeves Jackson⁵ says: "The operation by any method is essentially difficult, tedious, and dangerous, and no amount of skill in the performance can make it easy or safe." An editorial in the *British Medical Journal*⁶ says: "Vaginal hysterectomy, always a troublesome operation on account of the want of free space for operating, is rendered tenfold more difficult and dangerous when dissecting any of the pelvic cellular tissue is undertaken." Dr. E. C. Sterling⁷ says: "The operation is one of great diffi-

¹ Annals of Gynecology, June, 1892.

² Centralblatt für Gynäkologie, 1887, No. 12.

³ Fenger, American Journal of Medical Sciences.

⁴ Ibid.

⁵ Transactions American Gynecological Society, 1883.

⁶ May 21st, 1889, p. 1097.

⁷ First half Transactions of American Association Obstetricians and Gynecologists.

culty." Reamy¹ says: "Vaginal hysterectomy is a very dangerous operation."

Technique.—From the status of the operation, the procedure of others, and my own limited experience, I have been led to conclude that the operation could be very much simplified, made very much less difficult, and be very much less dangerous. The best and most natural mode of procedure has seemed to me to be the following: The patient having been prepared with equal care as for laparotomy and placed in the extreme lithotomy position, seize the cervix with strong forceps, bring it gradually down toward the rectum; note the extent of the bladder; if necessary, pass a sound, to be certain of its boundaries; make an incision on the anterior surface of the cervix near the boundary of the bladder, so as to be as far as possible from the cancerous cervix; separate the vaginal tissue anteriorly, and, when reaching the anterior cul-de-sac, open into the peritoneal cavity. The peritoneal membrane and the mucous membrane of the vagina may be caught together by a stitch; thereby the bladder is more securely protected, hemorrhage somewhat checked, and the stitch gives a convenient loop to hold out the membrane, that the uterus may be more easily approached. The fundus is seized by strong volsella forceps and brought out anteriorly. The left broad ligament is now at your hand, and can be easily secured by pressure forceps; or, what is better, ligate the top of the broad ligament and secure the lower portion with forceps. Delivering the uterus a little more, the right ligament is at your hand; secure it in the same way. To separate the posterior vaginal attachments is the work of but a few minutes. Sew or clamp the posterior membrane, remove the sponges, and clean out the peritoneal cavity.

By this method, systematically carried out, the operation may be made extremely simple; the time may be reduced one-half; there will not be near the tax, danger, or shock to the patient; and in favorable cases and under favorable circumstances the work may be done in ten, twelve, fifteen, or thirty minutes. We know by other methods the best operators consume one, two, or more hours.

Drainage.—I have usually inserted pieces of gauze, one end extending into the peritoneal cavity, thus making perfect drainage; tampon the vagina with the same gauze, then wrap the

¹ Gynecological Transactions, 1883, p. 232.

whole part, the projecting forceps, etc., with large folds of absorbent cotton covered with gauze. Place the patient in bed with a pillow under her knees, which will keep all secure. Some say leave the dressings on four or five days; but evidently if these dressings are daily removed much substance which has drained from the peritoneal cavity is taken away. The dressings should be changed just as we frequently draw off a drainage tube in abdominal section. I have found great advantage in changing the dressings twice the first twenty-four hours, and after that once a day.

Assistants.—Fenger says, in his excellent article printed in THE AMERICAN JOURNAL OF OBSTETRICS, 1881: "Six reliable assistants are required in performing the extirpation." I saw Martin do the operation, he had four assistants; Leopold the same number. I have frequently thought the fewer the number of assistants in any operation the better. Many surgeons tell us the danger of infection is increased by every added one. Thomas A. Emmet once said that "by an accidental visitor touching one of his instruments he believes he lost his patient." On an important occasion Gill Wylie¹ lately said, referring especially to the operation of laparotomy: "My aim is to have just as few assistants touch the patients, or touch the instruments, or do anything, as possible. In my operations one person is permitted to do that." He added: "I think the more progressive men have fewer assistants and nurses than they ever did before, the object being to avoid the danger of sepsis." Wylie further remarks: "The aim is, and has been for years, to do away with as many assistants and as many persons around the patient as possible." He said on another occasion: "Ordinarily three assistants; for," said he, "of course the number of persons helping adds to the danger of infection." I saw Dr. Baldy do a laparotomy in Philadelphia, April, 1892, when, besides the etherizer, he had but one assistant—viz., the nurse, who stood opposite to him. He got along comfortably and successfully. He told me, January 19th, 1893, for laparotomy he usually wished only one assistant besides the etherizer and a nurse. I saw Granville Bantock do a number of operations with only one assistant besides the etherizer. I have seen G. P. Edebohls perform a number of operations; besides the etherizer he usually had two assistants. I

¹ Medical Record, February 7th.

saw Joseph Price do a most difficult laparotomy, January 18th, 1893; besides the etherizer, who was one of his nurses, he had two other nurses to hand him the instruments and sponges as he wanted them.

With almost equal ease colpo-hysterectomy can be done with a few assistants. Dr. Bantock¹ performed vaginal hysterectomy, September, 1889, with only one assistant. The case was complicated by omental adhesion to the fundus, hydrosalpinx, and a disease of the left ovary, which latter was removed. The patient recovered without a bad symptom.

If the uterus is delivered anteriorly, no other opening being made, one can get along easily with two assistants. With my second and third I had two trained nurses to help; one administered the ether, the other handed me the needed instruments, gauze, sponges, etc. Dr. Price said on the above-mentioned occasion that "he trained his own nurses, and had rather have them than nurses from any training school." I am sure the two nurses we trained in the Woman's Hospital in Brooklyn did as good work, and in some respects better, than any nurses I have ever seen; and few physicians could administer the ether better, more carefully, or more successfully than either of these two nurses.

Shall the Vagino-peritoneal Opening be closed?—Not closing it certainly allows of more perfect drainage. Some say there is nothing to drain. There is a vast amount. I have repeatedly found the gauze, cotton, and all completely saturated. A diseased uterus has been removed, the broad ligaments have been cut, in many cases parametric cellular tissue has been separated, and blood and débris have necessarily collected in the peritoneal cavity. There is necessity of the most thorough drainage. The success of this operation depends upon good drainage and security against hemorrhage. In three of my cases I removed a large portion of the broad ligament, considerable of the parametric cellular tissue, and a portion of the vagina adjoining the cervix. Probably this liberal removal of surrounding tissue is what saved the patients' life. A. H. Cordier,² Kansas City, says: "These cases always drain profusely."

Joseph Price³ says: "It is surprising what a large amount of

¹ British Medical Journal, November 29th, 1890, p. 1238.

² "A Plea for the Early Surgical Treatment of Cancer of the Uterus." Read before the Obstetrical Society of Philadelphia, April, 1892.

³ Annals of Gynecology, June, 1892, p. 557.

fluid escapes after vaginal hysterectomy; it will soak through bandages and wet huge gauze pads. I have had cushions made two feet long and eighteen inches wide and four inches thick, of corrosive jute and gauze. These are sometimes soaked through in twelve hours." E. W. Cushing¹ says: "I am aware that attempts have been made to complete hysterectomy without drainage, tightly closing the wound. Martin began this way and lost a number of cases, and then resorted to drainage. I have seen Olshausen close the opening, but he told me that his results were not what he should like." Martin and others have used a T-shaped drainage tube. Some surgeons have suggested that pressure forceps will make sufficient drainage. I have found the most thorough and effective drainage secured by the use of a long slip of gauze entering the peritoneal cavity. With my fourth case I placed a drainage tube in addition to the piece of gauze. When removed there was nothing in the drainage tube, but the gauze was fully saturated and had saturated the dressings beneath and around.

How often should the Wound be dressed?—Many have recommended that the dressings be not removed for five or six days. I have found the best results by removing dressings the same day, a few hours after the operation—and have always found them thoroughly saturated—and after the first day, once in twenty-four hours, till the wound was healed. The frequent change of dressings keeps the pulse and temperature down, prevents restlessness and danger of septicemia. E. C. Dudley² says: "In one of my own cases the gauze, removed at the end of forty-eight hours, was found extremely fetid, and after its removal a quantity of offensive secretions immediately came away which had been dammed back against the wound in consequence of the obstruction of the gauze." These conditions were sufficient to have produced sepsis. Dr. James B. Hunter³ said he "had a case which died on the thirteenth day of septicemia; the iodoform gauze was removed in forty-eight hours." Greig Smith says: "Tampons in the genital passages have of themselves a strong tendency to become putrid."

When shall the Bowels be moved?—Fenger says: "It is natural that we keep the bowels perfectly quiet until the perito-

¹ Annals of Gynecology, June, 1892, p. 555.

² Gynecological Transactions, 1888, p. 177.

³ Ibid., p. 204.

neal wound is healed." In his case, reported in the *American Journal of the Medical Sciences*, the bowels were moved on the sixteenth day. I have found that the earlier and freer evacuation of the bowels the better for the patient, and, as after laparotomy, have usually tried to have a free evacuation of the bowels on the second day.

Shall Forceps or Ligatures be used?—In performing the above operation I voluntarily used forceps from the emergency of the case, and to save time. At first I clamped the whole broad ligament with forceps; but realizing that the projecting end of the forceps, by any restless or involuntary movement of the patient, might do injury, I thought best to ligature the top of the broad ligament and clamp the lower portion. I also saw that by using forceps, even with the greatest care, a fold may be left in the broad ligament, and possibly one of the numerous blood vessels may be left insecure. In general I use forceps or ligatures, as circumstances make it most convenient. Both are needed. Both are equally commended. Forceps many consider not so reliable and not always to be depended upon; a clamp may give way; the patient's life, in the still hours of the night, may hang on the security of one little clasp. With my fourth and fifth cases the patients were extremely feeble, and I worked with the expeditious haste of a good many forceps. Eighteen forceps were used; they were removed twenty hours after; all did well. Some of them were made by Tiemann; most of them were Tait's small forceps. H. T. Byford¹ says: "I still use ligatures whenever I can do so satisfactorily." In 1888 I saw Péan deliver a uterus by vaginal hysterectomy for a small intermural fibroid. The uterus was almost as large as the fourth month of pregnancy. He used many forceps. When the woman was placed in bed she was not expected to live through the night.

Pozzi states: "If the use of ligatures be possible, it is preferable. Forceps pressure has caused laceration and injuries of the intestines. They narrow the field of operation and prevent proper asepsis by the necrosis of the tissues included."

Martin says: "I am now positive that ligatures can be applied as rapidly, if properly understood, and with greater security than the forceps." Krug² says: "Any operator with skill can

¹ Gynecological Transactions, 1888, p. 204.

² AMERICAN JOURNAL OF OBSTETRICS.

tie as quickly as put on the clamp." E. W. Cushing¹ says: "In any case I think the sutures rather than clamps are indicated." Another writer says: "I always use clamps instead of ligatures, not only because thereby the operation is shortened and hemorrhage more safely controlled, but because the weight of the handles of the clamp insures thorough drainage." In August, 1888, I received a letter from Dr. E. C. Dudley, of Chicago, saying: "I am preparing a paper to be presented at the meeting of the American Gynecological Association in September on 'Vaginal Hysterectomy with Hemostasis by Pressure Forceps.' I should like to include your cases in the table of statistics. Will you kindly make out a tabulated statement, under the enclosed form, of your operations?" I sent him a table, of which the following is a portion:

STATISTICS.

Date.	Age.	Diagnosis.	To what extent, if at all, were ligatures or sutures used?	Remarks.
Mrs. C., June 4th, 1887.	60	Carcinoma..	Ligatures and sutures; no forceps left on.	Patient able to be up in two and a half weeks. Very much improved in health.
Mrs. E., September 13th, 1887.	49	Sarcoma....	A ligature at the top of each broad ligament; the rest of the ligament secured by forceps.	Forceps removed in forty-two hours. The patient was able to leave hospital in seventeen days, and has, up to this time, had excellent health.
Mrs. N.,	37	Sarcoma....	Do.	Forceps removed in fifty-eight hours. Patient much improved by operation. No return of disease.
Mrs. H., October 28th, 1887.	49	Carcinoma..	Do.	Forceps removed in thirty-six hours. No return of disease.
Mrs. E., November 28th, 1887.	39	Carcinoma..	Do.	Eighteen forceps removed in forty-eight hours. Patient able to be out of bed on the seventeenth day.

Incisions.—Many of our best operators make a circular incision around the cervix, open into the peritoneal cavity anteriorly and posteriorly, and deliver through Douglas' cul-de-sac. The two openings must give more liability to sepsis, and even

¹ Annals of Gynecology, June, 1892, p. 550.

to malignant infection; for while delivering the fundus the cervix is apt to pass, through the second opening, into the peritoneal cavity. In an operation I once witnessed, at one step the fundus was exactly in the vaginal canal, obscuring the view and impeding the work, while the cancerous cervix was up in the peritoneal cavity. What was to prevent infection? E. C. Dudley,¹ of Chicago, said he "put absorbent cotton in the cervix, in case it did get into the peritoneal cavity." Is it not better to keep it out of the cavity, even though so securely protected? Yet, delivering the fundus through Douglas' cul-de-sac, it may become a necessity; the uterus has to be turned, and cannot always be doubled upon itself. We see, again, that this method of delivery is unnatural. It is throwing the uterus as much as two-thirds of a circle from its normal position, which necessarily makes a great strain on the broad ligaments, the nerves, and a dangerous strain upon the bladder and its attachments, which continued strain may cause rupture in some vessel that may result in fatal hemorrhage. James B. Hunter² stated that he "had a number of times seen hemorrhage result from traction on the broad ligaments when there were no adhesions." Our little point will avoid many difficulties here, if, as Joseph Price³ suggests, "not to perforate anteriorly until the finger is hooked over the broad ligament posteriorly and indicates the point at which you wish to perforate." Thomas Keith, in removing a uterus in 1881, brought down the fundus posteriorly. This bringing down the uterus through Douglas' cul-de-sac is not free from danger, and in many respects; besides, there are peculiar advantages in delivering anteriorly. Probably in no way can the broad ligaments be so easily approached; and the entire work of tying them, delivering the uterus, etc., can be done before the posterior attachments of the vagina are severed. Even if the uterus be displaced or retroverted, it is better first to put it in position, as I did in my third case, and proceed by anterior delivery. Though in this case the uterus was retroverted, prolapsed, and complicated by an intermural fibroid, yet I found it easier to deliver through the anterior incision. The posterior delivery, I repeat, is more difficult, accompanied by greater possible danger and by greater shock.

¹ Gynecological Transactions, 1881, p. 204.

² AMERICAN JOURNAL OF OBSTETRICS, May, 1887.

³ Annals of Gynecology, p. 556.

I have become more and more convinced that the method I pursued in the last four cases is the one that can be done with the greatest ease and celerity, and is attended with the least shock and danger. Delivering posteriorly, we, as the *British Medical Journal*¹ asserts, "cut through structures that lie in the dark, or at least are difficult of access." If the uterus is delivered anteriorly the fundus can be readily brought forward, and securing the broad ligaments becomes an easy procedure. One can see all that is to be done, there is room to work, no structures are on a dangerous strain, and there is no necessity of making numerous stitches. Opening anteriorly also enables us to dispense with the many speculums, retractors, and other ponderous instruments that are placed in the vagina, which really obscure the view and impede the operation.

Let us for a moment examine the procedure of one of our most eminent operators—Martin, of Berlin. He says: "My method of vaginal extirpation is as follows: The vault of the vagina is exposed by means of a speculum and side pieces. The cervix is seized with bullet forceps in its posterior border and drawn forward as far as possible toward the symphysis pubis. Then I make an incision through the entire extent of the insertion of the vagina into the uterus, in order to advance into Douglas' cul-de-sac as quickly as possible. If the mass of tissue to be cut through is very thick, then this penetration will be very difficult and troublesome. I enlarge the opening into Douglas' cul-de-sac, then, with a small needle which is very much curved, I sew around the entire border of the cut in the vagina, usually with five stitches. I force my way deeper and deeper along the posterior wall. Next I sew up the stump of the broad ligament, for which purpose I use large needles armed with a double thread, thrusting them from this vaginal wall toward the place in the side of Douglas' cul-de-sac, while my forefinger within presses toward me."

All this while the uterus is being held in this forced position, with the great strain upon many structures. Martin continues: "I go deeper and deeper along the posterior wall." Even for the most dexterous this is extremely difficult.

Martin further says: "I cut around the anterior periphery while drawing the uterus forcibly backward and putting the anterior vaginal wall on the stretch." Many a bladder will be

¹ Editorial, March 26th, 1887, p. 680.

wounded or opened and many an operator come to grief. He says: "Drawing the uterus forcibly backward, I push back along the cervix with my finger nail that portion of the bladder that is united to the cervix, as far as I can discern the attachment." This separating the bladder from the cervix is one of the nice points of the operation, and, if done with the finger nail, the bladder may give way before some of the surrounding tissues. Dr. J. B. Etheridge, of Chicago, says: "It is the easiest thing in the world to open into the bladder." Martin continues: "Not infrequently it is necessary to use a knife in order to separate the firmest bands of the uterus. . . . We must sew as exactly as possible the separated surface to the vaginal wall. Five stitches generally suffice."

Now, both anteriorly and posteriorly, the vagina is separated from the cervix. Thus there are two openings into the peritoneal cavity. He says: "I grasp once more the posterior portion of the uterus. I seize its posterior lip with Muzenx forceps, in order to draw it firmly forward, and by obtaining successively fresh grips on the forceps I guide the posterior wall of the cervix and fundus into the opening, delivering posteriorly. If the uterus is large this stage of the operation may be made exceedingly tedious. An advantage is often secured by pushing the cervix up behind the symphysis pubis. Sometimes an instrument is placed into the uterine cavity to push the fundus down." But he said: "I like to avoid using this instrument, because the posterior wall of the uterus is generally bored through by it and the contents of the uterus escape on the surface of the wound. As soon as the fundus of the uterus has presented itself it passes through the opening, though in some cases this is attended with many difficulties, which must be overcome by using the knife or scissors."

Martin says: "The further detachment of the uterus in this inverted condition is very difficult. I isolate the insertion of the broad ligaments to the organs thus turned out; I tie in the nerves and blood vessels." Is it any wonder if some fine artery in the great plexus of blood vessels may be ruptured by this excessive strain, and produce a hemorrhage or oozing which it is impossible to detect or correct, and that even this master in gynecological surgery might not be able to prevent?

The second patient on whom he operated in the Murdock Free Hospital in Boston may have had this accident. The re-

port, as given in the *Annals of Gynecology*, says: "No notable difficulty occurred during the operation, except much hemorrhage from stump of broad ligament after removal of uterus. Dr. Martin put in several deep stitches or ligatures, and the hemorrhage seemed to be arrested. Patient came out of ether well, but sank and died during the night at 4:30 A.M. Autopsy showed quarts of fresh blood in the cavity. There had been no discharge of blood by the drainage tube, and no particular symptoms by which hemorrhage could be differentiated from the shock of operation."

Dr. Martin continues: "Into Douglas' cul-de-sac there is placed a Sims speculum or a side holder, and this protects the fundus from catching on the posterior portion of the wound. And if the uterus is large and thick this stage of the operation may be made exceedingly tedious, which must be overcome by using the knife or scissors. The further detachment of the uterus in this inverted condition is very difficult."

The report of the case operated on in Dr. H. O. Marcy's private hospital says: "Although the vagina was roomy and the large uterus was not adherent, yet Dr. Martin found great difficulty in turning the fundus over into the vagina."

Delivering the fundus anteriorly there is no special difficulty. It almost slides out on the inclined plane. No speculum or side holders have to be introduced to keep it from catching on the border of the wound.

Martin continues: "I isolate the insertion of the broad ligament to the organ thus turned over. I tie each side in one, two, or three segments, then cut away the uterus. When the cervix has been freed from behind and both sides, I enter on the detachment of the bladder." No wonder he says: "Even after having done the operation two hundred times I never feel quite free from embarrassment at this point. . . . I ascertain the condition of the bladder by a catheter, and then conclude the operation."

This would seem to be the first thing to consider. The object should be, not to consider an injury, but to prevent it. Even this great operator has cut into the bladder. Of one instance he says: "The connection between the uterus and bladder was quite extensive, but the opening in the bladder was reduced even during the operation by the natural contraction of the parts." But, said he, "as the opening had been difficult I did

not wish to prolong it by the suture of the bladder. The patient recovered and left the house eight weeks after the operation with a small opening in the cicatrix of the fundus." In the other case "he united the edges of the bladder and the border of the peritoneum to the vaginal. The patient left the hospital in three weeks, complaining still of some discomfiture in the bladder, which could retain only a small amount of urine. . . . The duration of the operation varies, according to the difficulties, from twenty minutes to two hours."¹

E. W. Cushing² says of Martin's operation: "An amount of suturing which to any one less expert would involve a terribly long operation, as, in fact, it does." Wathen, of Louisville, said of Martin and Schröder, "their technique was faulty."

Dr. G. M. Tuttle³ was present at the first operation performed by the surgeon who is credited with the largest number of hysterectomies on record, and he was sure that at that time he lacked a great deal in the manner.

Let us for a moment study the methods of other distinguished operators who have also had great success. Schröder says: "The uterus is pulled down as far as possible, a circular incision is then made in healthy tissue around the cervix, and the vaginal mucous membrane pushed back and upward. Douglas' pouch is opened by a transverse incision, and the uterus is then turned over so that its fundus appears at the opening. I generally first produce retroflexion and pull the body of the uterus through the incision in Douglas' pouch, separate the peritoneum of the vesico-uterine pouch, leaving the uterus, attached now only to the broad ligaments. These are ligated either with a single ligature or in different portions. The wound in the peritoneum is now cleared and the stump of the broad ligaments sewed in." Emmet⁴ says: "By combined manipulation the uterus is now retroverted and an attempt is made to bring the fundus through the wound in the peritoneal vaginal vault. This is not an easy matter, and the difficulty increases with the size of the uterus."

When I was in Dresden in the fall of 1886 I saw Leopold deliver a cancerous uterus posteriorly; and of all his operations

¹ Annals of Gynecology.

² Obstetrical Society, Philadelphia; Annals of Gynecology.

³ New York Obstetrical Society.

⁴ "Principles and Practice of Gynecology," p. 530.

that I had the pleasure of witnessing, this was the most beautiful and the most gracefully done. I sat at his left and had an opportunity of seeing every step in the procedure. He delivered posteriorly, as some of our best and most successful surgeons have done. During the same year I had an opportunity of seeing Martin, of Berlin, perform several vaginal hysterectomies.

In 1881 Dr. C. Fenger, of Chicago, performed a successful operation, when for the best operators there was twenty-five per cent of deaths. Yet, says he, "I did not hesitate, after careful investigation, to resort to the operation. A circular incision was made through the vaginal mucous membrane, so that the peritoneal cavity was opened posteriorly. The body of the uterus was anteverted and drawn out through the anterior cul-de-sac." This came near being an ideal operation. The patient did well. Anderson, the first one who did this operation in this country, made an incision through the vaginal wall around the entire cervix, opened the peritoneum both anteriorly and posteriorly.

Almost uniformly operators open the peritoneum both anteriorly and posteriorly, retrovert or retroflex the uterus, and deliver through Douglas' cul-de-sac.

Duncan, who reported the first cases of vaginal hysterectomy to the London Obstetrical Society, cut the vaginal mucous membrane around the cervix; opened the peritoneum anteriorly, then Douglas' cul-de-sac, and retroverted the uterus.

Purposes for which Colpo-hysterectomy may be performed.—
 1. For malignant diseases. 2. For small intermural myoma. 3. For senile atrophy. 4. For otherwise incurable prolapse. 5. For intractable inversion of the uterus. 6. For incurable endometritis. 7. For endometritis hemorrhagica. 8. For uterine retroflexion. And finally, in January, 1886, Martin performed the operation for a case of retained placenta, when the posterior wall of the uterus had become injured. The operation has also been recommended for ulceration and inflammation of uterine appendages. Péan and Ségond advise it in the treatment of peri-uterine suppuration. Frank, of Cologne, has performed it for uterine diseases that have refused to yield to all other means of treatment. He has done it when he was unable in other way to arrest quickly a uterine hemorrhage seriously jeopardizing life. He did it in two cases when the removal of the ovary had failed to relieve hysterical troubles, where the patients continue

to show the most violent hystero-epileptic attacks. Both were completely cured by the performance of hysterectomy.

Richelot said: "One could readily foresee the time when the field of this operation would be greatly extended." It may help many conditions that seem incurable and that are otherwise beyond remedy; yet the principal scope and object of this operation is to combat malignant disease. But even for this can we not find something better, something that is not attended with danger and more fully meets all the indications? Cannot something be found that will cure the disease, give no shock, nor allow of secondary formations? So fearful is this disease in its nature, so destructive in its effects, and so surely fatal in its termination, should we not more seriously turn our attention to studying it, its etiology, how to prevent, cure, or stay its progress?

Hewitt¹ has said: "Cancer of the generative organs is undoubtedly the most formidable affection to which woman is liable." Duncan adds: "Pain often exceeding in intensity all that can be imagined, and all tending surely and swiftly to a fatal issue." Meigs repeated in 1859: "Little can be done till the woman sinks into the grave, her only and her last, best refuge." Two veteran gynecologists of England say: "I know of no means by which the progress of cancer can be arrested"; and when all the profession re-echo the same, is it not time for us to look into this most frightful of maladies, study it well, and endeavor to save the thousands that are annually destroyed by it? We are still more urged to this by recognizing the fact that the disease is steadily on the increase. Sir Spencer Wells, December 1st, 1886, said: "While sanitary science is shortening the duration and lowering the fatality of some diseases, cancerous diseases are more prevalent and more fatal; there is a gradual increase in the mortality, greater than the proportional increase of population." The number of deaths from cancer in England increased from 7,245 in 1861 to 17,113 in 1887. In this country from 1877 to 1887 there were 156,924 deaths from cancer. Dr. Fordyce Barker says: "The mortality from cancer in the city of New York has risen from 400 to the million in 1875 to 530 to the million in 1885."

Every year sounds the same notes of rapid increase. Is it not our duty as physicians and surgeons to continue still more

¹ British Medical Journal, December 1st, 1888.

sedulously our studies to find not only the best methods of curing, but, if possible, the prevention of the disease? Sir James Paget, in his lecture on cancer and cancerous diseases, November 11th, 1887, says: "We are bound to seek everywhere and in all ways to find a method for either the prevention or cure of cancer and cancerous diseases."¹ John Marshall said, in 1889, in the Morton lecture on cancer and cancerous diseases, delivered before the Royal College of Surgeons: "We know not the cause. But does that prevent us from endeavoring to ascertain the cause? Are we not compelled, as members of a scientific profession, to dive into its mystery? It is likely that Providence has, as it were, struck such a fatal blow at the human construction that there is no remedy for our ignorance, that there is no knowledge but what we may possess. We are responsible for carrying on this investigation and inquiring into this disease until we know something more about it." "To this," say West and Duncan, "our common humanity prompts, our obligations as medical men compel us." All feel the necessity of studying this most mysterious of diseases; but it is only by microscopical investigation that we can settle these mysteries, or get "light, more light still" on these peculiar, painful, and penetrating growths. J. Sims Woodhead, Director of Research Laboratory of the Royal College of Physicians and Surgeons, says: "We owe to histology and statistics almost all knowledge concerning cancer that has been hitherto acquired."

In some of my late microscopical researches in the morbid anatomy of the ovary, earnestly trying to find out why diseases of these organs should destroy the health, comfort, and active usefulness of the individual, I came, in December, 1888, to an ovary which was a marked specimen of cancerous infiltration. I studied it from day to day, and returned repeatedly to the investigation of so interesting a subject. In June, 1892, I saw clearly that the inflammatory corpuscles of the "small cellular infiltration" around the growth were changing to cancer epithelia and forming cancer nests.² This fact is of the greatest practical importance, as I have indicated in another part of this paper, and heeding it may save the lives of many that otherwise would be lost. As early as 1883 Dr. Charles Heitzmann, with his clear penetration, suggested that the small cellular infiltratio

¹ British Medical Journal, 1887.

² Medical Record, March 11th, 1893.

around a cancerous tumor was "the first stage of cancer." But here, in this specimen, it was positively proved that this cellular infiltration was already cancer and formed a part of the malignant growth.

In studying the same specimen, I also demonstrated that cancer epithelia are conveyed to various parts of the system and to distant organs by the lymphatic vessels: and that these vessels form, at varying intervals, new cancerous foci and new centres of infection.

That cancer cells should be carried by the lymphatics has long been supposed to be the case, because the lymphatic ganglia in the neighborhood of the growth were the first to become affected; but it had never before been seen. This, so far as I know, is the first time the lymphatic vessels have been recognized, distended with their burden of cancer epithelia and carrying the disease germs. The thrombus in the lymph vessels becomes filled with new living matter, the epithelia grow and increase, and the nuclei divide and subdivide. I have watched this in repeated instances. J. Marshall, of London, says: "Shall we not hope to unfold the mystery of mysteries which lies in the nucleus of a cancer cell?"

Under a power of twelve hundred diameters I have seen some of the marvellous changes taking place in the cancer nuclei. They become coarsely granular, undergo division into smaller pieces of protoplasm, or, as some say, there is a "wild evolution of cells." Thus the nuclei break up into a number of irregular lumps of living matter, each one becoming an active centre of infection. They invade the lining endothelia of the lymph vessels. These endothelia become enlarged, filled with granular matter, and also undergo karyokinetic division. Changes take place in the wall of the lymph vessels, they melt away, and the cancer passes into new fields, taking possession of new and larger territories, still growing and spreading. Under the microscope the tissues around the lymph vessel were found filled with cancer epithelia; even the fibrous connective tissue surrounding the thrombus was in a state of active proliferation.

What is there in this nucleus that gives it such power to increase and multiply, and to destroy the natural structure of all tissues, and to sap the life of the strongest and most robust persons?

One author speaks of "cancer juices," and intimates that

cancerous growths may be "anarchical"—that is, without the controlling nerve fibres. These growths are not anarchical, they are still under vital control, and no cancer juice or chemical change can elaborate these formations. They are formed by the mysterious life principle, and under some morbid element. Sir Samuel Paget says: "I believe that micro-parasites, or substances produced by them, will some day be found in essential relation with cancer and cancerous diseases." Many have supposed they have found the micro-organism of cancer, but the discovery still eludes us; the mystery of mysteries still lies locked in a cancer nucleus, yet to be discovered in the study of structure and of life changes.

163 DE KALB AVENUE.

A UNIQUE CASE OF EXTRA-UTERINE FETATION.¹

BY

GEO. J. ENGELMANN, M.D.,
Honorary President from America,
St. Louis.

(With one illustration.)

I DESIRE to bring before this international forum a unique specimen which is instructive in reference to the etiology and diagnosis of extra-uterine pregnancy, and is, moreover, thoroughly corroborated by clinical history and by close personal observation of the patient.

The specimen itself is preserved, and the history of the patient, who has been under constant observation for the last four years, is so complete and known to so many that the facts revealed and the deductions drawn therefrom are proven conclusively, with the precision of a chemical experiment, and can be readily verified.

The *clinical history* is, in brief: A. B. was brought on a stretcher into the gynecological department of the St. Louis Polyclinic four years ago. Patient, who had been bed-ridden for six months as a sequence to violent pelvic inflammation

¹ Read before the First International Congress of Gynecology, in Brussels.

was in a depleted state, exceedingly nervous, suffering from endometritis and perimetritis, with marked salpingitis and ovaritis. Under the treatment inaugurated relief from excessive suffering was soon obtained; yet convalescence was slow; improvement of the complicated pelvic state, as well as her general condition, was barely perceptible from month to month; but by persistent clinical attendance and strict obedience to all directions given for two full years, she was finally enabled to undertake light work for self-support. Even after this she continued under constant observation; although her visits to the clinic became less frequent, she promptly returned for treatment whenever cold or over-exertion might have caused a temporary aggravation. By this persistent care, so unusual in an out-door patient, health was gradually restored; she became robust and strong, so that she felt equal to undertaking the duties of a sick-nurse, and served well and faithfully in this capacity in the hospital, and in private families as well. Pelvic irritation had disappeared, and, although indurations remained and adhesions could be traced, no inflammatory symptoms recurred.

For the last year or two she had been practically a well woman, and such was her condition when she was seized with what she herself termed cramps; abdominal pain due to indigestion, as she stated for the purpose of deceiving the attending physician. These cramping pains were accompanied by occasional spells of weakness and fainting, and, after some days, were followed by a slowly developing peritonitis, not distinctly pelvic in character, so that her description of the pain as gastric seemed all the more natural; and as the fever lessened and patient improved decidedly for several days after entering the hospital, the treatment was supposed to be to the point and was persisted in; but soon a change came and sepsis developed, which rapidly led to a fatal termination.

The case appeared thus by reason of the deception practised by the sufferer, who persistently misrepresented; and having been in constant contact with physicians and with disease for years as nurse or patient, it was easy for her to dissemble and avoid examination. She sought to appear as suffering from constipation and resulting disturbances of digestion, and her story seemed a plausible one. Menstruation had always been somewhat irregular, and cessation or any unusual irregularity was denied, likewise any unusual flow of blood or pelvic pain. All

conditions pointing to pelvic disease, to pregnancy or miscarriage, were denied; if hemorrhage had occurred it was successfully concealed and evidently checked at the time of an examination; all suffering was referred to the stomach and bowels.

I must here state that in this last illness patient was not under my care or that of my assistants. I saw her but casually during the days of improvement and apparent convalescence, to encourage her; and again in the septic state, when, after a hasty examination, I left a note for the attendant, an able surgeon, saying: "I believe this woman to be doomed unless you operate." But, conditions not appearing to him as indicated by me, the suggestion was not acted upon.

The actual facts, as in part confessed to me in her last days and in part revealed by the symptoms seen and corroborated by the post-mortem examination, give the case a very different aspect. Patient passed the usual time for the recurrence of her menstrual period without any evidence of a flow, and soon began to suffer from nausea and occasional vomiting, which she referred to gastric disturbances following her irregular mode of life, cold meals, and other sequences of her "light housekeeping." Between two and three weeks after the time when she might have expected her period she was seized with faintness and pelvic discomfort; then came cramping pains and, as it appears, some bloody discharge from the uterus, to what extent I cannot say. Cramping pains, general debility, dimness of vision, lightness of head were such that she sought medical advice and walked to the physician's office, where she fainted, as was then supposed from the pain caused by a hypodermic injection of morphine but, as the accompanying dimness of vision would make it appear, by the rupture of the sac and following hemorrhage, or by an increase of the pre-existing internal oozing. She was sent to the hospital, and there developed evidences of peritonitis, but appeared to be improving under treatment, pain as well as pulse and temperature subsiding. It would appear that she was about recovering from the disturbance produced by the rupture and consequent loss of blood, which was not in great quantity, as shown by the post-mortem examination; but within a few days, not quite a week after she first began to complain, her condition rapidly grew worse, amid septic symptoms evidently resulting from her filthy condition, the absence of all antisepsis, and even of cleanliness or washes—as no discharge of any kind had been

observed or complained of, and no indication of any possible uterine or pelvic irregularity had been given, such precautions had not been observed. Infection was evidently carried by her own finger to the accumulation of congealed blood in the vagina, as she confessed her repeated digital examinations and manipulations, having probably made efforts to penetrate the uterine cavity in her dread of pregnancy.

It was in this septic state that I saw and examined her, finding some blood in the vagina; the uterine somewhat enlarged, but not more than might have been expected with her history; the left tube and ovary were indurated, but the right could not be felt through the sensitive and distended abdominal walls; the pelvis was free; there was no unusual resistance to be detected anywhere, either in the cul-de-sac or in the ovarian region, but there was an apparent point of greatest tenderness and slightly increased resistance in the region of the appendix vermiformis, which led me to urge operation upon the attending physician—though, as I afterward found, this was deemed inexpedient, as no such resistance was observed at the time of his examination, and within forty-eight hours she died.

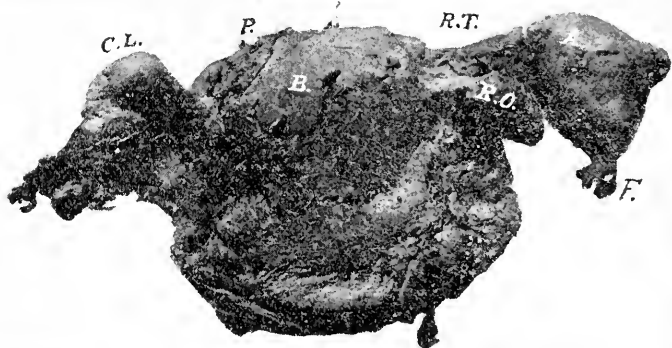
The post-mortem examination revealed localized congestion of the peritoneum and shreds of clotted blood throughout the lower portion of the abdomen, especially about the posterior portion of the uterus and the right tube, but no larger clots or accumulations; the curious feature of the case being the location of this tube, with ovisac and ovary, well up in the right side, by reason of existing adhesions and the attachment of the tube to the appendix vermiformis.

The specimen, as well depicted in the photograph, shows some unusual and well-marked features; shreds of inspissated blood or small tissue-like clots (B) covering the broad ligaments and the fundus and posterior portion of the uterus, which was somewhat enlarged and hard. No traces of any more recent inflammation were visible in the pelvic viscera beyond such as may have followed the rupture—a slight redness of the uterine surface and the congestion of the superimposed intestinal coils. The distorted condition of the pelvic viscera, adhesions, contractions, and indurations, indicated the extent and violence of the first inflammation, four years previous, to which all her pelvic trouble is referable; and an examination of the specimen proves that all pathological changes which were not of quite recent

origin, following the rupture, must be referred to the long past perimetritis, the source of all changes and suffering; and we know well, as the clinical history shows, that this is actually so, that no inflammation has occurred since.

A prominent feature is the corpus luteum (C L) in the left ovary (L O), quite recent, unusually perfect, and well shown in the plate; the ovary itself is small, flat, and firmly united with the tube.

The left tube (L T) is thickened, indurated, contorted, and, what is most important in the consideration of this case, *occluded*, as microscopic examination shows. The right ovary (R O) is small, atrophic, drawn out of its usual position by close connec-



tion to the tube and ovisac; it gives no indication whatsoever of a corpus luteum, or even a recently ruptured follicle, and the tissue is indurated. The right tube, which is but little thickened in its undistended uterine half, is dragged well away from its usual site by an attachment to the appendix vermiformis; the peripheral portion is distended by the ovum, forming a sac three centimetres broad by four in length. In the centre of the upper portion of this ovisac is the rupture (R), one centimetre in diameter, now firmly closed by a clot which is seen to protrude. Upon the posterior surface of the distended portion of the tube, one and a half centimetres from the median end and two and a quarter centimetres from the rupture, is the point of adhesion to the appendix vermiformis (A), the remnants of which

are distinctly visible. That the pregnancy is purely tubal is evident from the perfect preservation of the fimbriae (F).

A survey of this specimen demonstrates with unusual distinctness (1) the circuitous route taken by the ovule; (2) the difficulty of diagnosis by reason of the dislocation of the parts; and (3) the possibility of a cure of serious pelvic troubles without resort to the knife.

1. As the corpus luteum is in the left ovary, the ovule must have come from this source; and, the left tube being occluded, it was forced to travel through the abdominal cavity to the region of the appendix vermiformis and there enter the right tube, where it was impregnated. Nor is any other supposition possible, since the ostium tubæ could never have approached the ovary of the other side, by reason of the firm adhesion surrounding the tube and its attachment to the appendix; and I should deem it unlikely, to say the least, that the ovule should have travelled this distance and then through the right tube into the uterus, as some suppose to be the usual course, there to be impregnated, and then to return to the fimbriated extremity, there to develop.

The distinctly marked corpus luteum of the left ovary, the occlusion of the left tube, with the ovisac in the extremity of the firmly adherent right tube, unquestionably indicate the route taken by the ovule, *i.e.*, traversing the pelvic cavity.

2. The difficulty of diagnosis amid unusual conditions and deceptive statements is evident, yet laparatomy would have solved all doubts and saved the patient; but though this course seemed to me to be the one indicated, others did not agree with me, as she referred her suffering so distinctly to gastric and intestinal ailments.

The unusual location of the ovisac, of tube and ovary, quite out of reach of the examining finger, and the absence of any accumulation of blood or fluid which could be felt or detected by percussion, together with the tenderness of the abdomen, removed all possibility of determining the actual condition of affairs by vaginal or bimanual examination; the ovarian region was free, and the one point of greater tenderness which did exist was in the region of the appendix. The patient was single, as we may recall, *denied* cessation of menstruation or hemorrhage, and complained of the griping pains of indigestion, from which she was known to have suffered before. Operation was indicated, but

whether for inflammation of the appendix vermiformis or some indistinct injury to the uterine appendages, was doubtful.

The difficulties of diagnosis were such that they even persisted during the post-mortem examination, which had been almost concluded upon my arrival without revealing the sources of trouble, as the sexual organs had not been removed, and I was met with the statement, "died from intrapelvic hemorrhage, cause unknown."

But after a more thorough examination and a removal of the organs the curious condition here demonstrated was finally discovered.

3. The clinical history, confirmed by the specimen itself, affords strong evidence in favor of the conservative treatment of pelvic inflammation, and proves that even grave tubo-ovarian disease and violent perimetritis can be *cured*, so far as restoration to health is concerned, *without removal of the appendages*.

The specimen, the indurated, enlarged uterus, the occluded, thickened left tube, the atrophied ovaries, and the adhesions on all sides, in themselves, regardless of the confirmatory history, demonstrate the violence of pelvic inflammation from which the patient suffered when she first entered my clinic years ago, after having been bed-ridden for six months. Again and again I at that time advised removal of the ovaries, and she again and again refused. Treatment was persistently continued for fully two years, but she was restored, led an active life, part of the time as sick-nurse, so that we all know full well of her robust appearance and thorough good health, such as operation, though successful, does not always assure.

3003 LOCUST STREET, ST. LOUIS.

SECOND OCCURRENCE OF ECTOPIC GESTATION IN THE SAME PATIENT.

WITH REPORT OF A CASE.¹

BY

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THE occurrence of ectopic pregnancy the second time in the same patient presents interesting questions of etiological and

¹ Read before the Obstetrical Society of Cincinnati, December 15th, 1892.

pathological importance. The condition has not been frequently recorded. Mr. G. Ernest Herman reported a case in which he operated for ectopic pregnancy in January, 1887, and operated a second time on the same patient in May, 1890. Mr. Tait reports a case in which he did abdominal section for ectopic pregnancy in 1885. The same patient gave birth to a child eighteen months later. Fifteen months after this she became for the second time a victim of ectopic pregnancy, from the rupture of which she succumbed, the diagnosis being confirmed by autopsy. Leopold Meyer, of Copenhagen, gives a case on which he operated in 1887, which had all the rational physical signs of ectopic gestation again in September, 1888. He also gives a résumé of nine other cases, including the one already quoted by Mr. Tait. Some of his cases are in doubt, because the diagnosis was not confirmed either by section or autopsy. Those operators whom he quotes as having had cases that had been thus confirmed are Olshausen, Veit, and Tait. I am not aware that any cases at the hands of American operators have been placed upon record in detail, and think the following is the first to be placed in the annals of our literature.

I was called by Dr. J. A. Johnston, March 18th, 1891, to see Mrs. M. Her attendant had made a diagnosis of ectopic pregnancy. She was at the time in fair general condition, but gave the history of a recent internal hemorrhage, from which she was manifestly reacting. As her surroundings were not desirable, and as she was obviously improving, it was thought best to await such time as she could be prudently removed to the hospital. The next evening, however, she had a recurrence of abdominal cramps and faintness, but which were not extreme. March 20th the operation was done at the patient's residence, in the presence of the Drs. Abbott, and with the assistance of my associate, Dr. Johnston, who was the attending physician in the case. The abdomen was full of blood, chiefly old clots, but presenting abundant evidence of recent hemorrhage. The cul-de-sac was filled with laminated clots. The Fallopian tube, which was greatly enlarged, and in the centre of which was a large rent, was removed. The patient was quite weak, so no attempt was made to look after the appendages of the other side. Drainage was employed after she had been first copiously irrigated. The abundance of decidua in the extirpated tube left no doubt that the case was one of ruptured tubal pregnancy,

although no fetus was found. The patient made the usual uneventful recovery experienced by cases operated upon under favorable circumstances. I never saw her after the operation, and my next information concerning her was in the form of a letter from Dr. Carl Beck, of Chicago, as follows:

"DEAR DOCTOR:—It will certainly be of interest to you to hear something about the history of one of the patients you have operated upon.

"You performed laparotomy, with Dr. Johnston, about a year ago on Mrs. M., formerly living at Cincinnati, now of Chicago, removing an abdominal tumor. On August 23d I was called to see her, and found her suffering from the symptoms of intestinal obstruction. She had suffered from slow action of her bowels more or less since the operation, but for two days she had had no passage and vomited intestinal matter. After all medicinal methods failed I concluded to do a laparotomy. August 26th I operated and found a cyst-like tumor (of the size of the head of a new-born child), with distinct fluctuation, large blood vessels in the wall, which was membrane-like on some points, presented itself in the pelvis, and was adherent all over. A short tube was at the apex, and the uterus, somewhat enlarged, was bound down by firm adhesions, and broadly connected with the tumor, the nature of which was clear when I had made an incision and extracted a living fetus of about three months. After evacuation it was seen that the whole was a tubo-uterine pregnancy, accidentally found, for when I searched for the cause of the obstruction I found two band-like adhesions crossing the jejunum about two feet below the duodenum and entirely constricting the gut."

In my opening paragraph I allude to the fact that the consideration of the occurrence of ectopic gestation the second time in the same patient at once raises a point of importance both in the etiology and pathology of this disease. If one thing has been made more clear than another, it is that ectopic gestation depends for its occurrence upon the destruction of the endothelium of the tube at its uterine orifice. This destruction of course does away with the cilia, which in pathological conditions stand as barriers, preventing the escape of the spermatozoa into the tubes. The late Prof. Formad, in some remarks made before the American Association of Obstetricians and Gynecologists in Philadelphia in 1890, alluded to twenty-eight cases of

ectopic gestation which he had examined post mortem, all of which had shown evidences of inflammatory destruction of the endotubal cilia. He did not state on that occasion that he had found this destructive condition to be uniformly bilateral, and yet it is a well-known fact, established by the observations of Bland Sutton, Sinclair, Tait, and others, and confirmed by observations in America, that where suppurative disease has invaded one tube the opposite one is generally involved. This fact, so firmly established by accurate observation in the post-mortem room and confirmed by clinical experience to which I have already alluded, at once raises the important question: "What should be done to prevent the occurrence of ectopic pregnancy the second time in the same patient?" It is true that the objection may be urged that the dozen or more cases upon record in which this aberrant form of gestation has occurred for the second time in the same individual do not establish the rule that precautionary measures should be adopted against such occurrence. An examination of the cases which have been confirmed by post-mortem examination will reveal the fact that post-mortem examinations were made generally by purest accident. This at once gives point to the speculation as to the number of cases that have perished from this accident, and which have not been confirmed either by abdominal section or autopsy. In a paper on the general subject of ectopic pregnancy, read before the Southern Surgical and Gynecological Association in 1890 (see Transactions), I laid down the rule governing proceedings at the primary operation as follows: That "in all cases in which the appendages of the other side present the least evidence of disease, they also should be removed, providing the condition of the patient at the time will justify such extension of the operation." I have had no occasion to change my conviction upon this subject, although at the time I little thought that from my own practice should come a case not only in violation of the rule which I had formulated, but in confirmation of the views which I then enunciated. I may be pardoned, however, if I recant what I have just said, and claim that the case which I have just reported was in accordance with my rule, although the appendages were left intact. They, however, at the time of the operation did not present evidences of disease, and there were conditions arising, chiefly out of the recent extensive hemorrhage, which I felt would not justify such extension of the operation.

The patient was almost exsanguinated from the recent ruptures, and the clots which were removed were numerous, dense, and laminated. When I say that there were no evidences of disease of the appendages which were left, I of course allude to that macroscopic appearance presented by inspection of the intact tube and ovary. Such observation could, of course, take no account whatever of the condition of the endothelium, the destruction of which, doubtless previous to the first operation, paved the way to the second ectopic gestation.

311 ELM STREET.

ACQUIRED VENEREAL DISEASE IN CHILDREN.¹

BY

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THE subject which I have selected for discussion by the Society to-night is one which, to my knowledge, has never been brought to its attention before, and about which I have been unable to find any information in such works on diseases of children as are ordinarily found in the physician's library or that I possess. I believe the matter to be of sufficient importance for the Society's attention, because it is one which presents both medical and legal aspects. It shows a condition of juvenile depravity which we are loath to admit, but which it is important for us to recognize. Of the six cases which I report, four occurred in the course of my service at the Children's Hospital in this city. The fifth case was observed in my private practice. While a large proportion of the service at the hospital is composed of white children, all of the cases which I report this evening were colored—a fact which may be ascribed to the lower order of their domestic conditions.

The first four cases, as I report them, are from notes taken at the time of their admission to the hospital service, and which are recorded on the books of the institution. The fifth and last case is the one which occurred in my private practice, and which I still have under observation and treatment.

¹ Read before the Obstetrical and Gynecological Society of Washington, March 4th, 1892.

CASE I.—F. B., colored, male, born in District of Columbia, age 8 years. Large, well-nourished boy. A few months previous to present difficulty he had been treated for a scrofulous condition of the glands of the neck.

Three days before admission to service he began to have a burning, smarting pain on micturition, and the next day a purulent discharge from meatus was observed. On close questioning it was learned that the boy had had intercourse with his sister some time before, the girl being about two years his senior. When seen he had a purulent discharge from his urethra, with painful micturition. Was given an alkaline mixture with boracic acid injections, and in about a week the discharge entirely ceased. He had no complications or sequelæ. The boy's sister was examined, but she presented at the time no signs of gonorrhœa.

CASE II.—A. E., colored, male, born in District of Columbia, age 8 years. Boy's general health excellent. Admitted that about six weeks previous to admission he had had intercourse with a girl about 15 or 16 years of age. For a month past has had a discharge from meatus, accompanied by painful micturition. At times urine is passed tinged with blood. At present has no discharge, but a drop of purulent matter can be squeezed from meatus on pressure. Was under treatment for two months, symptoms reappearing when remedies were withheld and disappearing on their resumption. At end of above time the boy was entirely relieved and has remained well, he being still under observation.

CASE III.—M. G., colored, female, age 8 years. Came to hospital service to be treated for discharge from vagina. Admitted that on a number of occasions a young man living in the same house with her had attempted to have connection. On examination, labia and clitoris found to be much swollen and congested, with a copious purulent discharge from vagina and a burning sensation on urinating. Was given appropriate antiseptic treatment, and two days later reported that discharge was less, that she had no difficulty in micturition, and that swelling had considerably subsided. Was under treatment for nearly a month before discharge entirely ceased, but at the end of that time there were no evidences of disease remaining.

CASE IV.—C. B., colored, male, 6 years of age; general condition good. Three days before admission began to complain of

painful micturition. Since then urine has been diminished in quantity, and is each time accompanied by pain in its passage. There has been a slight discharge of pus from urethra, and for the past day or two this has been accompanied by the discharge of a little blood. When seen, complained of a stinging, burning pain on micturating. Penis swollen, slightly inflamed around meatus, and on pressure pus exudes from urethra. Under appropriate treatment symptoms gradually disappeared, and in six weeks the boy was entirely well. We were never able to secure a positive history of the mode of infection in this case.

CASE V.—E. J., colored, female, age 4 years. Perfectly well until four days before admission, when her mother noticed that urination was painful and difficult, and upon examination found that there was a purulent discharge from vagina. When first seen, child had a slight rise in temperature and a profuse discharge of pus from vagina. The parts were inflamed and slightly swollen, but showed no signs of violence. Was given proper treatment, and three days later micturition was still painful and the discharge quite profuse, but the parts were less inflamed and all fever had disappeared. In ten days the child was nearly well, and was not seen again. Mother professed to know nothing of any violence having been attempted, and the child was too young to give any satisfactory history.

The remaining case which I beg leave to call the attention of the Society to is that of a mulatto boy aged 7 years. I was called in to see him last spring, and found him suffering from a well-marked chancre on the penis. The parts were much swollen, and it looked at one time as if circumcision would be necessary in order to expose the sore for treatment. The inguinal glands were enlarged. The history of infection in this case was clear, and was as follows: In the household, employed as a seamstress, was a young woman. According to the boy's account of matters, this woman was in the habit of taking him into her room, and, after producing an erection of his organ, having intercourse with him. This happened frequently. The boy admits having both power and desire for intercourse, and claims to have had escapades with other females. Six weeks after the discovery of the chancre he was covered with a specific eruption and had much sore throat. He has been for months and still is under treatment for his trouble. Dr. H. Robbins saw the case for me on several occasions, and is conversant with above history.

I hesitated in selecting for discussion a subject so repugnant to delicacy; but being impressed by the frequency of the condition, and finding it to be a subject avoided or but infrequently referred to by writers on pediatrics, I decided to give to the Society what information about the matter I had gathered, in the hope that some good might result from the discussion evoked. In searching the records of the library of the Surgeon-General's Office it is surprising to find how little has been written on the subject. All that can be found are the reports of a few isolated cases. These I will not repeat, but will give the references as a future aid in saving time to any one who desires to combine the literature of the subject.

The chief lesson to be learned from the record of these cases is, I believe, the necessity for a rigid and conscientious scrutiny of the attendants and playmates of children.

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DÜHRSSSEN'S METHOD OF DEEP CERVIX INCISIONS IN CASES REQUIRING RAPID DELIVERY.¹

BY

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IN the *Archives für Gynäkologie* some two years ago there appeared an article by Dührssen, of Berlin. This article advocated a method of rapid delivery and was based upon a study of

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ten cases. The method consisted of making deep incisions into the lower uterine segment, starting at the cervico-vaginal junction, and was to be used where the life of the mother or child was endangered during labor or late pregnancy. It was held to be especially indicated in those cases, found mainly in primiparæ, where the body of the cervix has nearly or entirely disappeared. His results were so excellent—for all his cases got well and only one child died—that, in spite of a very decided opposition, it was held to be a rational measure, and was added by not a few to those operative procedures which we call legitimate. Some of his original cases were desperate ones, yet, in spite of the exigencies and complications which each and every one presented, he had the pleasure of seeing his new idea crowned by success. I say new idea, but by this I do not mean that the operative measure emanated from him, for it was a case of resurrection of an old idea. In a modified form it had been described years ago by prominent obstetric teachers. As late as 1887 Skutsch recommended superficial multiple incisions into the cervix. But his results were such as to deter him from repeating the operation. He only operated in a few cases. In one the original incisions tore so as to require suture after delivery. In another the tear from a small incision into the cervix extended so deep that the uterine artery had to be tied. But in the method described in this paper, where the cervical portion is split in four directions throughout its entirety—*i.e.*, to the cervico-vaginal junction—according to Dührssen the original incisions will not extend further, as they do in the incomplete method, for when the incisions are properly made the os becomes fully dilated. When traction is exercised upon the presenting part no further tension or stretching is brought to bear upon the now fully dilated os. Furthermore, the superficial multiple incisions are irrational, because: 1. Labor pains being absent in a large number of cases calling for this operation, it would be necessary to do an accouchement forcé. 2. Superficial incisions are likely to tear irregularly, so that instead of a clean-cut wound we get ragged tears, which, should it be necessary to suture them, are less likely to heal than clean, deep incisions made by the knife.

In studying a new operation which has been recommended for dangerous cases, we naturally weigh the value of the operation against its immediate dangers. We ask: Is the operation associated with danger, or do the results show an increased mortality?

In a late paper¹ by Dührssen he had operated upon thirty-five women. All recovered, and all the children lived except two. The indications were numerous, but the majority of the operations were done for that dangerous complication—eclampsia. It is admitted by all that the rate of mortality in eclampsia is twenty-five per cent. Furthermore, the latest statistics show that when labor is terminated, whether by artificial or natural means, the convulsions cease in over ninety per cent (93.75 per cent) of the cases. Now, we must admit that any method or means which terminates labor in such cases, when not in itself too dangerous, cannot possibly do harm, but good. Dangerous maladies require bold if not dangerous methods. A severe eclamptic attack may mean a sudden death—when, how soon, or in what manner we cannot know. No one can prognosticate good or bad in any case. A severe case may, if left to itself, get well; but how often do we see apparently mild cases terminate rapidly in death! A complicating fatty embolus of the lung or an apoplexy of the brain we cannot treat; but a hemorrhage, if such occur, from a clean-cut wound, can be checked by suture ligature or tampon. Even, for the sake of argument, should an incision made into the cervix by chance extend into the peri-uterine cellular tissue, it is, if treated rationally and scientifically, of no such great moment as we were formerly led to suppose. I believe, according to the best authorities, it is agreed that, if in a case of rupture of the uterus the tear be not too extensive, a thorough tamponade, with or without a drainage tube, after the Vienna method, is all that is necessary. If this be true of one, why not of the other? It might be asked, Why this rapid method, with its possible dangers, when a slower and safer method of inducing labor could be used? My answer is, that it saves time. A woman threatened with an eclamptic convulsion, or in her first attack, is in a very critical state. If we wait for labor to start by using the ordinary methods—the catheter, Barnes' bags, puncture of the membranes, etc.—we lose valuable time, and in great probability our patient also. A catheter will usually provoke labor in about twenty-four hours, but how often have we to wait thirty-six or forty-eight hours, and then fail! Or are we to depend upon an accouchement forcé, by which I mean a forcible delivery through an undilated or undilatable os, with its traumatic influences and pernicious effects? It is the duty of the

¹ Centralblatt für Gynäkologie, No. 8, 1892.

obstetrician to save life, even if in the attempt he sacrifices it. To do nothing or to operate slowly is to reduce that hope to a minimum; to act rapidly, fearlessly, and boldly causes us to feel that we have given our patient the best chance for a recovery.

We come now to the second possible danger—infection. In Dührssen's experience no infection occurred during labor. Some brought the infection from without before delivery was attempted. Perfect cleanliness in all its minor details will reduce the possibility of infection to a minimum; or, where the patient is already septic, a tampon of iodoform gauze thoroughly and firmly packed into the uterus will prevent further infection.

Hemorrhage, according to Dührssen, never occurred in the cases under his observation where the uterus was well contracted. There are no large vessels in the vaginal cervix, therefore suture is not necessary. In his twenty-six cases he never had the least trouble from this source. In one of the two cases related below, the truth of the above statement was well exemplified—that is, after the child had been delivered the uterus became perfectly atonic, causing a severe bleeding, which necessitated tamponing the uterus. Before this, in spite of very deep and regular incisions, no bleeding occurred. Even where, during labor, the entire vaginal portion is torn off in a circular manner, the bleeding is very slight. According to Häuselmann,¹ in seven cases occurring in the clinic at Bern, and fourteen cases found in the collected literature of the subject, the bleeding was usually very slight, for the reason that only small vessels were severed. Should hemorrhage occur, a thorough packing with gauze or a deep suture passed will end it; but in the experience my two cases afforded me I can truly say that the bleeding was not more than that which occurs in a normal labor.

Another element of danger to be thought of is a tear starting from the original incisions. This was discussed above and need not be repeated; but I wish to state that in both cases under my care a careful examination revealed just such conditions as I had expected—four clean incisions and no further lacerations of the uterus or vagina.

Spontaneous union of the cervical incisions usually occurs. Dührssen found union in all his cases. Of my own, the result

¹ "Ueber circuläre Abreisungen der Vaginal-Portion während der Geburt." Inaug. Diss., Bern, 1886.

was only determined in one—a very small stellate laceration remaining, much less than often seen after a normal delivery.

Indications.—In the great majority of cases the operation is permissible shortly before or during labor, when the supravaginal portion has disappeared. Upon this point Dührssen lays particular stress. Where the supravaginal portion is present he advises that blunt dilatation with finger or instrument should precede his incisions, they being made only when the supravaginal portion has nearly or entirely disappeared. In multiparæ where the supravaginal portion is abnormally rigid or consists of cicatricial tissue, as from an old cervical laceration, incision of the supravaginal portion may be called for. The operation, according to Dührssen, is also indicated in the rigid os of old primiparæ where the ordinary remedies fail; in cases of premature artificial rupture of the membranes; placenta previa; eclampsia, especially in primiparæ; prolapsus funi in old primiparæ; in cases of flat, rachitic, and generally contracted pelves, to afford the accoucheur the opportunity to apply the forceps at the time when the position of the head is most favorable. But to my mind the operation is called for, in an overwhelming majority of cases, by eclampsia. For these cases I do not know of one operation where speed and rapidity of action can be so relied upon as in the procedure recommended in this article. In both my cases the interval was less than fifteen minutes from the time the cervix was incised until the delivery of the placenta. Another condition, not mentioned by Dührssen, where the operation must be of signal assistance, is in accidental hemorrhage before and during labor. In these cases little, if anything, can be done before the uterus is emptied. All the remedies thus far employed have been purely tentative and empirical. Where grave symptoms are presented to us which we fully associate with bleeding going on inside of the uterus, what remedy could be easier of application or speedier of result than deep cervical incisions? Just such an indication caused me to use this remedy in my first case.

The Method of Operation.—Dührssen advises the use of a pair of scissors of large size. It is necessary to thoroughly disinfect the vaginal tract and vulva. The lower uterine segment is seized through the speculum by a pair of stout bullet forceps, and the tissues cut, dividing the cervix from the vaginal junction down. This is done on four sides. In my own cases I made use

of a long, sharp bistoury, for I believe the incisions can be more carefully done and the cut is cleaner than by the scissors. No speculum was used. The uterus is steadied by a pair of bullet forceps. The index finger is carried into the cervical canal to a point corresponding to the cervico-vaginal junction. The knife, guarded by and between the index and middle fingers of the other hand, is passed along the vagina to the junction of the cervix and vagina. When the fingers of both hands meet, the point of the knife is pressed against the finger inside of the cervix, and both are withdrawn at the same time, the point of the knife continually in contact with the finger to prevent its injuring the vagina. This manœuvre is repeated until the incisions are made on four sides. In those cases in which the supravaginal portion is present the advice given is somewhat modified. Blunt manual or instrumental dilatation until this portion has nearly or entirely disappeared—*i.e.*, merged into the uterus—should be followed by the deep incisions. Of Dührssen's vagino-perineal incisions, which he advises in those cases in which the vulvo-vaginal portion is not dilatable or in suitable condition to afford an easy passage to the fetus, I shall say nothing, as I have never used them, and hardly consider them of enough value in cases of rapid delivery to cause me to use them; at least, so far I have not seen the case in which these incisions were indicated.

The histories of my two cases are as follows:

CASE I.—I was summoned in great haste to see Mrs. W., æt. 20, primipara. She was said to be in labor and losing a large amount of blood. I found a large woman; had been in labor about ten hours, evidently at term. Pains had been absent for some time before my arrival. The condition of the patient was such as to cause me to suspect a hemorrhage somewhere. She presented all the symptoms of an acute anemia. Uterus was fairly well contracted, and regularly so except at the fundus; here a large mass bulged outward, upward, and to the right. The tumor was about the size of a fetal head, was regular in form, firm, and round. It had the feel of a fibroid tumor. From the vagina blood was running in a steady stream, and from all appearances the patient must have lost a large amount. Internal examination revealed the head presenting in the V. R. O. A. position, situated in the cavity of the pelvis, and fixed. The os uteri admitted two fingers, was

very thin, and the rim sharp. The entire picture presented to me was that of an accidental and partly concealed hemorrhage. The condition of the patient was such as to warrant me in delivering her as rapidly as possible. Proceeding exactly as described above, the cervix was incised in four directions by means of a bistoury. The forceps was applied and the patient rapidly delivered. The child, male, weighed seven pounds, and cried lustily when born. Immediate expression of the placenta was tried at first, but failed because of the large size of the uterus. It was removed manually. No clots were present. The tumor in the upper part of the uterus proved to be a large uterine fibroid, which evidently was the cause of the sharp hemorrhage. The patient, because of her collapsed state, received four quarts of one-half-per-cent saline solution into the bowel. She made a regular though slow convalescence. In removing the placenta I carefully examined the incisions made, and found that they had not extended any further than the original incisions. Some time after I gave this patient a thorough examination, and found nothing of the original incisions except a very small stellate laceration of the cervix. This laceration did not appear to give rise to either local or general disturbance. The uterus was well involuted and in a normal position. In finishing the history of this case, I wish to state that the time occupied in delivering the patient, from the time the incisions were started until the placenta was removed, was less than ten minutes.

CASE II.—Mrs. K., æt. 30. Family history good. In good health until pregnant about two months, when she began to have persistent vomiting, especially severe in the morning. Suffers very much from headache, more marked across the eyes. Very constipated all through the pregnancy. She was under treatment for dyspepsia by her family physician up to two weeks of her convulsions. Date of last menstruation and period of quickening unknown. On October 12th Dr. Ettinger was hurriedly called to see the patient, whom he found in a characteristic eclamptic attack. She had had, the night before, two convulsions, for which she received a hypodermic of morphine from some other physician. Dr. Ettinger found the patient about seven and one-half months pregnant. She had edema of face and legs; considerable stupor, which gradually increased, only broken by an occasional convulsion;

complete anuria, so that urine could not be examined. I was invited to see the case about 8 p.m. Found patient in complete coma. Pulse small and very rapid. Had two convulsions in my presence. Examination by the vagina revealed the presence of a small segment of the supravaginal portion. The external os presented itself with a double deep laceration admitting one finger. So dense was the cicatricial tissue that on introducing the finger it felt as if surrounded by a rim of bone. The right lower uterine zone appeared abnormally and suspiciously thick and boggy. It proved to be the site of the placental implantation, a partial placenta previa. Immediate delivery was decided upon. Owing to the presence of the dense rim of cicatricial tissue, I was utterly unable to manually dilate the cervix. After half an hour's faithful trial I was unable to pass in more than my index finger. Branched steel dilators, Hegar's dilators as many as could be introduced, and Barnes' bags were of no assistance; none of them in the slightest way made an impression upon this veritable iron-like band. To do our utmost to save this poor woman, two courses now lay open to us—either Cesarean section or the deep incisions after Dührssen. I believe Halbertsma, of Utrecht, in 1889, in a paper entitled "A New Indication for the Cesarean Section," advocated this operation in cases of severe eclampsia during the life of the mother, and not as a post-mortem operation. As radical as his measure appears at first to be, yet the results in his three cases published at that time were very good. One mother died—a hopeless case from the start; in the others, both mothers and babies lived. In my own case the Cesarean section was decided against; for, as the child was probably dead, nothing was to be gained in this direction, and the mother's chances, poor as they were in any event, would have been *nil* had she been subjected to an abdominal section. We decided to do the Dührssen operation, even though the case was complicated by a placenta previa, which would necessitate an incision through the placenta. With surprising ease the cervix was incised in four directions in the manner described above. I was compelled to hasten matters, owing to the rapidly failing pulse, which could hardly be felt at the wrist, and the deepening coma. After incising I pushed the placenta to one side, grasped a foot, and easily delivered a macerated fetus, female, sixteen inches in length. Placenta was then removed. The incisions in the cervix had not extended and did not cause bleeding. Uterus con-

tracted well, and a hot intra-uterine douche was given. From an atonia uteri fifteen minutes later a severe hemorrhage occurred, which necessitated firm intra-uterine tamponing with gauze. Patient was put to bed in a hot-air bath, and trinitrin, one-hundredth of a grain, given every two hours. Convulsions did not return. The condition of the patient after the operation was good. There seemed to be steady improvement. Color in the face returned. Pulse 90 and strong. Coma lessened, and patient appeared as if in a natural sleep, but could not be awakened. The next day, at 7 A.M., she suddenly developed symptoms of heart failure and pulmonary edema, and died.

1111 LEXINGTON AVENUE.

A CASE OF RUPTURE OF AN OVARIAN CYST.

BY

REUBEN PETERSON, M.D.,
Gynecologist St. Mark's Hospital, Grand Rapids, Mich.

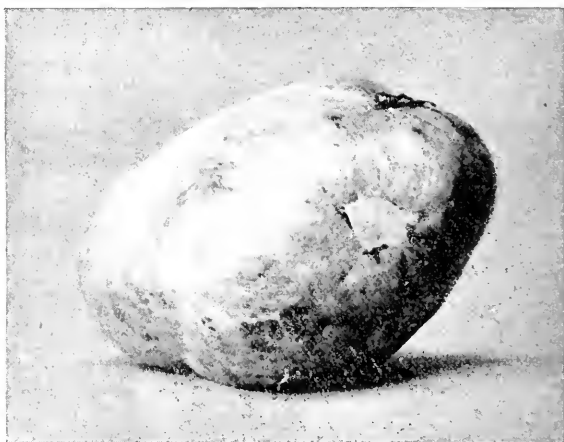
(With one illustration.)

WHILE the rupture of an ovarian cyst can hardly be said to be of rare occurrence, the completeness of the history in the following case would seem to merit its being placed upon record.

Mrs. P., age 58, married and the mother of two children, consulted the writer about the 1st of November, 1892, in reference to an abdominal growth. Examination revealed a cyst of the left ovary, the upper border of which extended to midway between the umbilicus and ensiform cartilage. The patient stated that six years ago her attention was first drawn to a small, movable tumor in the left pelvis. This had gradually increased in size for four years, at which time it had reached the dimensions of the present growth, when it suddenly disappeared as the result of a misstep she made while alighting from her carriage. Immediately after the accident she was seized with violent abdominal pains and a feeling of great weight and pressure throughout the pelvis. For the relief of this she took strong cathartics, and, according to her statements, passed large quantities of fluid from both rectum and bladder. The pains, together with the pressure symptoms, gradually subsided, and she saw no more of

the tumor until last spring, when it again appeared in the left pelvis. Since that time the cyst has steadily increased in size up to its present proportions. The only inconvenience experienced was increased frequency of micturition, due to the pressure of the cyst upon the bladder.

Removal of the tumor was advised and accepted, and the operation was performed in St. Mark's Hospital, November 9th, 1892. An unilocular cyst of the left ovary was found and removed without difficulty, there being no adhesions. The sac contained a straw-colored fluid, and the whole tumor weighed eleven pounds. The pedicle was tied with silk, and no drainage



tube was used. With the exception of a mural abscess, for which no cause could be found, the patient made an excellent recovery.

The examination of the specimen proved most interesting for, when the cyst was distended with air, a cicatrix two inches in diameter could be seen, marking the site of the previous rupture. A detailed description seems unnecessary, in view of the fact that an excellent photograph of the specimen was obtained.

Rupture of an ovarian cyst has been frequently observed and many cases reported. Nepven¹ collected the reports of one hundred and twenty-seven, and Aronson two hundred and fifty three cases. That the accident is a serious one can be inferred from the fact that of the one hundred and twenty-seven case

¹ Pozzi, "Medical and Surgical Gynecology," vol. ii., p. 131.

reported by the former, sixty-three ended fatally. The mortality evidently is largely dependent upon the nature of the contents of the cyst. If the fluid be bland and unirritating, whether it escape slowly through a small opening or through a large rent, there may be no resulting peritonitis. Unfortunately, however, the accident is more liable to occur in multilocular tumors, as their walls are thinner than those of the unilocular variety; and as the contents of the former are well known to be much less benign, the dangers of a fatal termination are increased. Peaslee¹ mentions having seen five cases of spontaneous rupture of polycysts, with four deaths from peritonitis.

The rupture into the peritoneal cavity of a suppurating ovarian cyst usually proves rapidly fatal, although some patients have been saved by a timely operation.²

Even should the contents of the cyst be benign, if a large amount of fluid be suddenly poured out into the peritoneal cavity through a large rent, death may result suddenly from collapse. Pain is an almost constant symptom of a ruptured cyst, whether it result in a peritonitis or not.

While a spontaneous cure, accompanied by a disappearance of the tumor by the disposal of the fluid by diuresis or diaphoresis, may occur, in most instances the fluid after a time reaccumulates. Peaslee speaks of cases, like the one just reported, where the resulting cicatrices were found at a subsequent ovariectomy.

Among the causes of rupture are mentioned: overdistention of large cysts; a sudden blow upon the abdomen; from concussion through a fall, as in the present case; rough handling during an examination; and the growth of papillomatous masses within the cyst, producing a thinning or erosion of the wall. In the latter case, to the dangers of rupture may be added the resulting infection of the peritoneum.

Perforation would seem to occur most frequently into the peritoneal cavity. Instances are reported, however, where the rupture took place into the intestines, bladder, vagina, and even into the stomach.

In a recent case, where the writer assisted in the removal of a suppurating ovarian cyst containing over a quart of pus, the wall of the cyst was intimately connected with the rectum. The latter was so thin that a perforation seemed imminent, and after

¹ "Ovarian Tumors," p. 75.

² Pozzi, "Medical and Surgical Gynecology," note 17, p. 143.

the adhesions were carefully separated we were able to prove its non-existence only by introducing a finger through the anus and demonstrating that the rectal wall was intact. As the remainder of the cyst wall was thick, it seemed fair to assume that a perforation into the bowel would have resulted in a short time.

As ovarian growths are removed at the present time much earlier than formerly, it would seem as if accidental rupture will be much less frequently met with in the future.

THE GILBERT, 122 MONROE STREET.

SURGICAL TREATMENT OF CRANIAL INFRACTION IN A NEW-BORN INFANT.

BY

IRVING W. SMITH, M.D.,
Charles City, Iowa.

SYSTEMATIC works take pains to mention that cranial injuries are liable to occur independently of undue or badly applied instrumental force, but, so far as I know, do not make any suggestions as to treatment of such cases. The writer has used forceps rather freely and frequently for a country practitioner, and until a few months ago never injured a child. Then came an instance where a fronto-parietal depression was attributed to a bad use of the instrument. The infant developed obscure symptoms and perished after about twelve days. Not long after this experience I delivered Mrs. J. S. with forceps for the third time. The woman is a dwarf, but her two previous deliveries were accomplished without any untoward event. The presentation was right occipito-anterior. The application was high, and the impingements of the tips of the blades of the Hodge instrument were on the left frontal eminence and over the right ear. During extraction a sense of something giving way was felt for a moment, and on emergence of the head there was found a depression of the cranium on the right side of frontal bone. The main axis of depression was a line starting from a point on the sagittal suture a little back of its junction with the coronal, and running forward, downward, and outward a distance of about three inches. The breadth of the depression was

about two inches, and its greatest depth not less than half an inch.

The child was large and vigorous, but it hardly slept or nursed and was restless and crying constantly. On the fourth day it was decided to treat the case on general principles. The infant was anesthetized, the scalp opened, and the bone divided by Hey's saw transversely to the depression axis. The bone was lifted by the elevator applied successively on either side of the saw track. A slender, long spicule was removed. There was some free venous hemorrhage, but no shock, and the child slept and nursed normally from the hour of the operation. Primary union followed, and a month later the infant seems perfectly well. I believe the injury was caused by unskilful application of force, bringing the injured part across the promontory of a strongly curved sacrum.

A RARE CASE.

A FATTY UTERUS—REMOVAL—RECOVERY.

BY

J. N. MARTIN, M.D.,

Professor of Diseases of Women and Obstetrics at the University of Michigan.

A BRIEF history of the patient is as follows: Mrs. S., Manistee, Mich., 32 years of age; married ten years; mother of four children, whose ages range from 9 to 5 years. She never had an abortion. The family history shows some consumptives and a case of epilepsy. A few days after the birth of the first child the patient had inflammation of both breasts and the secretion dried up. She was unable to nurse any of her children, as her breasts never secreted again. Her health was excellent until six years ago, when she began to suffer from pain in the right ovarian region; this was almost constant, and was worse at time of her periods. A little later she noticed a "lump" in the right inguinal region, the size of a hen's egg; this gradually increased, until at the time of examination, April 29th, 1892, I found a tumor extending up to the level of the umbilicus, and uterus much enlarged. Her menstrual periods were normal until six years ago, when menorrhagia and dysmenorrhea began.

These increased from month to month, until at time of examination she was very weak and pale.

Physical examination revealed a uterus measuring over six inches in length internally and freely movable. The interior of the uterus was soft and spongy, and bled freely after careful introduction of the uterine sound. There was an ovarian tumor on the right side extending up to the umbilicus.

Operation.—I operated May 10th, 1892, at the University Hospital, in the presence of several physicians and the medical class, assisted by Dr. J. G. Lynds and my staff. As the uterus had been curetted, and she had received much treatment without benefit, I decided to remove the uterus and tumor, and did so—total extirpation. The patient made an excellent recovery and is now well, over nine months after the operation. An examination of the symmetrically developed uterus revealed the cavity of the uterus surrounded on all sides by fat from two to three inches in thickness; this was surrounded by the serous membrane, with a few fibres of muscular tissue, in all about one-sixty-fourth of an inch in thickness. Prof. Gibbes, our pathologist, made an examination of the same and reported as above. I do not recall a case just like this on record.

TRANSACTIONS OF THE NEW YORK ACADEMY OF MEDICINE.

SECTION ON OBSTETRICS AND GYNECOLOGY.

Stated Meeting, March 23d, 1893.

H. J. BOLDT, M.D., *Chairman.*

FUNIS WOUND SIX TIMES AROUND THE NECK.

DR. J. CLIFTON EDGAR presented a fetus with the umbilical cord wound six times around the neck. He had seen the woman about the beginning of the ninth month of pregnancy, and she had ceased to feel life in the fetus a week previously. She had become very nervous and had a slight elevation of temperature. The fetal heart could not be heard. He assumed that there was death of the fetus from some cause, and, as the woman's health was beginning to suffer, he induced labor by injecting glycerin into the uterus, introducing three ounces up to the

fundus. Full dilatation had taken place in six hours. The difficulty of extracting the fetus was out of proportion to its size, and was found due to shortening of the cord by reason of its being wound around the neck. He severed the cord from the placenta, yet the latter came away with the fetus, as stated. The cord was found wrapped six times around the fetal neck. He had read of a case in which the cord had been wrapped around the body or neck nine times, and from the wording of the case he thought the body, not the neck, was meant.

DR. FRUITNIGHT had seen a case in which the cord was wrapped around the neck four times.

INSTRUMENT FOR TIGHTENING LIGATURES.

DR. AYERS presented a two-bladed instrument which he had devised to take the place of the fingers in tightening ligatures at the bottom of cavities, as in vaginal hysterectomy and laparotomy for abdominal tumors. He had found it very useful in a case of splenectomy in which he had assisted Dr. Wyeth. Without it traction with the fingers would have been necessary and would have incurred danger.

A CASE SIMULATING PREGNANCY.

THE CHAIRMAN related the case. The woman came to the clinic with an abdominal tumor and all the signs of pregnancy—morning sickness, changes in the nipples, etc. The cervix was up under the symphysis, and on the right side was a tumor, believed to be the retrodisplaced gravid uterus of about the fourth month, and the patient had menstruated regularly until four months previously. The abdominal tumor was larger, reaching to above the umbilicus on the left side, and was supposed to be an ovarian cystoma. The diagnosis was ovarian cystoma and uterine pregnancy of about the fourth month. He said the first thing he did on opening the abdomen was to cut into the bladder, which was unexpectedly found adherent to the parietal peritoneum and tumor. This wound in the bladder was closed, but the viscus was again injured in another place owing to intimate adhesions. The tumor was found to be an intraligamentous cystoma, which was removed, necessitating also the removal of a little of the uterine wall to which it was attached. The patient died, and post mortem he removed a tumor involving the broad ligament on the other side, which he did not cut into, supposing it was an extra-uterine pregnancy, and turned it over to Dr. Freeborn for examination. He was astonished to learn from Dr. Freeborn that it was nothing more than a suppurating ovarian cystoma and diseased tube.

DECAPITATION DURING EXTRACTION.

DR. MALCOLM McLEAN related a case which he thought should serve as a lesson against faulty midwifery. He first saw

the woman at 10 P.M. Friday, she having been in labor since 1 P.M. Thursday. The first stage continued apparently until Friday morning, and then she began to have severe pains, which had lasted all day. Notwithstanding that the head did not engage in the superior strait, nothing practically was done until 4 P.M. The head was above the brim, and the doctor applied forceps, but they slipped each time. Then some attempt was made to measure the brim, and it was thought slight contraction existed. Version was performed, the feet brought down rather rapidly. The large body was brought down at 6 P.M., but the two or three physicians present were unable to extract the head, and Dr. McLean arrived at 10 P.M. He found the woman in bad condition, under chloroform, the buttocks near the edge of the bed, the child's feet touching the floor, the head in the uterus almost completely separated from the body at the fourth cervical vertebra. With difficulty he put on the Tarnier forceps and extracted, and, for the moral effect, sewed the almost severed head on the body. Although the woman was still alive, it was likely she would die. There were injuries of the uterus, rectum, etc. Had intelligent efforts at delivery been undertaken fifteen hours earlier he thought the result would have been very different. It was evident enormous traction had been made on the child after turning, whereas pressure upon the uterus from without, and direction of the chin from within, would probably have saved injury to mother and child.

DR. JEWETT had been called to two cases similar to Dr. McLean's. In one the child's head was completely severed from the body and lay within the uterus; in the other it was nearly severed, and he completed it, seeing no advantage in leaving a string-like connection between the head and body. The head was pressed out by guiding the chin and manipulating the uterus from without.

DISCUSSION ON SYMPHYSIOTOMY.

DR. H. C. COE opened the discussion with a brief paper relating only to practical points. As practical men we wish to know what are the indications for the operation. Does it accomplish what has been claimed for it, and is the patient left in a perfectly normal condition afterward? Incidentally we also desire to know how far, if at all, pubiotomy is to be regarded as a substitute for the Cesarean section. I acknowledge that I am not such an enthusiast in favor of symphysiotomy as some of my obstetrical friends, though it is hardly fair to allow one's self to be prejudiced by a single case which was, perhaps, not a fair test. I conceive that one of the most difficult problems presented to the obstetrician is to decide beforehand whether he can probably deliver a live child through a moderately contracted pelvis. There are so many factors to be considered: the trans-

verse as well as the antero-posterior diameters, the depth of the symphysis and angle, the size of the fetal head, the condition of the child, duration of labor, the previous history of the patient, and last, but not least, the personal equation—*i.e.*, the skill of the operator. It was in just such cases that good judgment and experience counted for more than the hard-and-fast rules of the books. Hardly any two men would agree regarding the exact length of the true conjugate; how, then, could we be guided by a difference of two-eighths of an inch as to whether we should elect forceps, version, craniotomy, or Cesarean section? We could afford to split hairs at a society discussion, but not at the bedside. It was because of uncertainty as to ability to extract *per vias naturales* that conscientious and conservative men would be slow about adopting symphysiotomy, through fear of being accused of practising it unnecessarily. He had lost a child not long since in a case in which symphysiotomy, as afterward was learned, was clearly indicated on account of the great disproportion between the pelvis and fetal head. In a case in which he had recently assisted Dr. Grandin he believed that the small child could be delivered without doing pubiotomy, yet the operation, it proved, was clearly justified by the difficulty attending extraction even with from four to five centimetres separation.

His only case of symphysiotomy had been performed February 5th on M. K., who had entered the Maternity Hospital December 9th, labor supposed to be due January 11th. He and Dr. Edgar made out the true conjugate 3.5 inches, Dr. Murray 3 inches. After consultation he performed symphysiotomy, making a three-inch median incision, carried well down to the root of the clitoris. He cleared away the prevesical fat and fibrous tissue (the patient was fat) and exposed the anterior surface of the joint so that he could see just what he was doing. Not having his Galbiati knife at hand, he used an ordinary blunt-pointed curved bistoury, dividing the symphysis from above downward, the urethra being depressed in the usual manner. The separation was only an inch until the ligamentum arcuatum was divided, when it was two inches. This was an important point, since it was the custom at the Dresden clinic to preserve this ligament. Oozing was controlled by gauze. Version was difficult because of the projection of the promontory and size of the head, and extraction was exceedingly difficult notwithstanding separation of the pubic bones during this act of nearly three inches. The child weighed a little over eight pounds, was deeply asphyxiated, but lived. Head measurements: Occipito-bregmatic, $4\frac{1}{2}$ inches; bitemporal, $3\frac{1}{4}$ inches; biparietal, $4\frac{1}{4}$ inches. The external wound was closed; a strip of rubber plaster eight inches wide was passed entirely around the patient's body over the trochanters, the pubic bones being meanwhile approximated by pressure. Convalescence was admirable, but before confinement she had been spoken of as queer.

and since confinement had passed from mania to dementia and partial hemiplegia and symptoms pointing evidently to a central lesion. There was fibrous but not bony union in the line of the pubiotomy.

Symphysiotomy could be said to be a safe and not difficult operation, and safer to the mother than Cesarean section.

DR. CHARLES JEWETT thought that if symphysiotomy were done where it really was not necessary it was of comparatively little importance, for the separation would then be trifling and the danger slight. The greater danger lay in a mistake in the other direction—namely, performing symphysiotomy in a pelvis in which it was impossible by this method to extract a living child; where, in other words, Cesarean section should have been done in the first instance. But the amount of gain in room or diameters after symphysiotomy was, it should be remembered, greater in practice than one would expect from theoretical considerations or from experiments upon the cadaver. As to the final results upon locomotion, even if firm union did not take place, slight motion between the pelvic articulations would do no harm. In speaking of the direction of the incision Dr. Jewett said there really was little difficulty in engaging the knife from behind, and an advantage in cutting from below upward was the better protection against injury of the urethra and vessels.

THE MOTHER DIED OF ALCOHOLIC PNEUMONIA.

DR. EDWARD P. DAVIS, of Philadelphia, said that in his case of symphysiotomy the child lived, but the mother died, not from the operation, but from alcoholic pneumonia, as was confirmed at autopsy. After dividing the symphysis the child was extracted by Tarnier forceps without difficulty. The mother died on the third day of alcoholic pneumonia, and at autopsy the symphysis was found three inches high, whereas the average height in normal pelvis was, he said, four to four and a half centimetres. The curve of the Galbiati knife was represented by two inches, hence the difficulty, in this case, of engaging it under the symphysis. Then the joint had not a straight line, but was sinuous, so that the pathologist had to use a small, sharp-pointed knife in order to dissect his way between the two surfaces. The symphysiotomy knife had deflected to the right near the upper termination of the cut. There were no evidences of septic infection. He would add to the armamentarium, aside from the Galbiati knife and probe-pointed bistoury, a chain saw such as surgeons used, so that, if rachitical bony union or sinuosity existed, it would be possible still to divide the symphysis, even in a straight line. He thought the operation would come to be limited to cases in which by this method no reasonable doubt would exist as to the possibility of extract-

ing the child. There were cases in which it certainly could not take the place of Cesarean section.

DR. NOBLE, of Philadelphia, said he had operated in one case, and employed the method recommended abroad, cutting from below up and from behind forward. It had the advantage that there was less danger of contamination by the lochia, and he had been surprised how easily the finger passed down behind and how easily division was effected; yet, by incising the cartilage above first to find a guide, one would then be more likely at once to strike the cartilage below. In other regards he thought the advantage lay with the posterior inferior incision. Then, as to the small knife recommended by some, it might in difficult cases break. At any rate, it would be better to have the stronger knife—the Galbiati—at hand. His case was one in which the woman had borne five children: the first labor, difficult forceps, child's head injured; second, natural labor; third, a Cesarean section; fourth, induced labor, child weighing five pounds, extracted with great difficulty; fifth, symphysiotomy, difficult extraction, large child, conjugata vera not more than three inches. He emphasized the point that symphysiotomy was not adapted to the marked varieties of pelvic deformity. In the after-treatment he had found great satisfaction in using two binders, the inner having a perineal fork or flap which made it easier to clean the patient. He welcomed symphysiotomy especially because it would do away with embryotomy on the living child—a procedure which general practitioners were apt to employ rather than risk Cesarean section.

DR. EGBERT H. GRANDIN continued the discussion.

DR. MALCOLM McLEAN thought the motto cited by Dr. Grandin—to go slowly—should be kept before us in entertaining this renewed operation. He believed there was a field for it, and thought that now he would not do embryotomy upon the living child. But one should be very careful about two things: First, not to mistake for a deformed pelvis, as was often done, that which was only a disproportion between the head and the brim—a disproportion which should disappear if Nature were given a little time and received intelligent aid. Even where one of the fontanelles had disappeared, moulding would often take place to a surprising degree, for overlapping of the cranial bones was not the sole explanation of the moulding process. Failure to recognize the extent of the moulding process had led general practitioners to clap on the forceps frequently when not necessary. From now on the error might be in doing symphysiotomy in similar conditions. The second point to be remembered was the importance of position as well as of presentation. It might seem impossible for the head to enter the brim when slight change of position would make it quite easy.

DR. R. A. MURRAY made some remarks on the cases of Dr. Coe and Dr. Grandin, which he had seen with those gentlemen.

It should be borne in mind that there was yet a great field for the relative Cesarean section. He thought the saving of many children by Morisani after symphysiotomy was due largely to version. The after-effects on the woman deserved more careful study. He thought there was less danger from lack of union at the divided symphysis than from hernia after Cesarean section.

DR. ROBERT P. HARRIS, of Philadelphia, sent a communication. In it he said the operation of symphysiotomy in Italy had had a lower rate of mortality than outside, which the writer thought might be attributed to the subosseous method of operating and to the fact that very few women had been delivered at their homes. There had been four deaths in France, two in Italy, two in the United States, one in Russia, and one in Austria, or ten out of one hundred and twenty operations all told. Nearly all the deaths were due to conditions resulting from labor, and not to the operation.

DR. COE closed the discussion. A point which had not been brought out in the discussion was a fact which should be distinctly borne in mind, namely, that symphysiotomy was not adapted to even moderately contracted pelves if there was marked lateral distortion. Then the point had not been touched upon as to what relation symphysiotomy would have to cases in private practice. One might be allowed to do symphysiotomy, in order to save the child, when Cesarean section would not be entertained at all.

While he agreed with Dr. McLean, yet there was difficulty in giving an absolute prognosis based on the question of whether the head would mould. Unfortunately he had had cases where he thought the head would mould, and had waited too long. The only way to arrive at a conclusion in any way satisfactory was to give an anesthetic and pass the hand up into the uterus, examine the size of the head, the condition of the sutures, the position, etc. External palpation was not sufficient in doubtful cases.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF CINCINNATI.

Meeting of December 15th, 1892.

BYRON STANTON, M.D., *President, in the Chair.*

DR. CHARLES A. L. REED read a paper entitled

THE SECOND OCCURRENCE OF ECTOPIC GESTATION IN THE SAME
PATIENT.¹

DR. SIGMAR STARK demonstrated under the microscope a sec-

¹ See original article, p. 694.

tion of a specimen which he had removed from a woman who was attacked with

INTRAPERITONEAL HEMATOCELE.

After opening the abdomen a large, encapsulated blood clot and the tube and ovary of the right side were removed. The tube was enlarged and filled with blood, but intact, and near its fimbriated extremity was a warty-looking mass about the size of a bean. He said: I at the time considered this a case of ectopic pregnancy of four weeks' duration, in which complete extrusion of the ovum had occurred into the peritoneal cavity; but since I have made microscopic sections of this specimen I look upon it as an angioma of the tube. The specimen shows a very great development of the intravillous blood vessels above the site of the growth, which apparently has its origin just below the mucous membrane, between it and the muscular coat, and is made up of a network of blood vessels. Throughout the specimen there is evidence of recent hemorrhage.

In this connection I also desire to refer to an unusual occurrence in a case of extraperitoneal hematocoele due to tubal pregnancy, in which, after incision and removal of the blood clot, with suture of the incised ligament into the abdominal wound, a fistula remained, through which menstrual discharges have regularly occurred. I take it, therefore, that the wound in the tube has not healed, and, coincident with uterine menstruation, there is tubal menstruation, or possibly the blood may be regurgitated from the uterus into the tube and come out through the wound.

DR. THADDEUS A. REAMY.—I believe that, as a rule, the ovum is fecundated in the uterus, not in the Fallopian tube. I also believe, with the author of the report made to-night, that chronic salpingitis resulting in exfoliation of tubal epithelium, associated, as this condition frequently is, with a patulous state of the uterine end of the tube, favors passage of the spermatozoa within the tube, thus accounting for possibly a majority of cases of tubal gestation. At the same time it is most probable that spermatozoa may and do enter healthy tubes, and that under such conditions tubal pregnancy may occur.

But I cannot go to the length advocated by Dr. Reed. Granting the truth of what he claims, it proves too much. He affirms that a sufficiently diseased state of one tube to admit of gestation in it raises such strong presumptive evidence of disease of the opposite tube as to warrant its removal, at the same operation, as a guard against a subsequent tubal pregnancy. He cites the case, so full of interest, which he has just reported, as evidence in support of his position.

Tait, Veit, and others have reported cases of pregnancy in the remaining tube after one had been removed for a tubal pregnancy. But the reports of such instances are so rare as to make those reported rather remarkable. Either disease of the oppo-

site tube is by no means so common as claimed by Dr. Reed and others, or, granting its frequency, it cannot favor tubal pregnancy so much as claimed. I must insist that unless there is, at the time, manifest gross disease in the opposite tube, an operator for ectopic gestation is not warranted in the removal of the opposite tube. Quite a number of cases are on record where women upon whom laparotomy was done for ectopic gestation have subsequently borne healthy children. Therefore no operator has a right, on presumption simply, to deprive a woman of the possibilities of maternity.

DR. HALL.—I think the unilateral disease in these patients is worthy of careful consideration. We are not custodians of the public health to the extent that we are to be held responsible for a second ectopic pregnancy if we do not remove the opposite side, if that side is apparently healthy. We are no more responsible for the second extra-uterine pregnancy than we are for the first. I think it is a subject which will bear careful investigation before we lay down hard-and-fast rules that we must remove organs from both sides. I think it is well to examine both sides in all cases; and if there is gross disease present, as an inflammatory condition, we would say the woman was an invalid, and if she recovered from ectopic pregnancy she would not be a well woman, and she would run risk of a recurrence if the organs were not removed from the other side. Then my conscience would be clear in removing the other side, and I would do so. But, on the other hand, if I could not detect the presence of disease with the naked eye, I do not think I would remove the other tube. If the argument presented were true, and if it is so likely to occur after the first ectopic pregnancy, and the individual be prone to ectopic pregnancy, as claimed by the essayist, we certainly would have more than six cases reported. I can scarcely think it is so likely to occur as the essayist would lead us to believe.

The doctor must have had a different experience from mine when he speaks of the "usual uneventful recovery" of ectopic-pregnancy operations. Mine have not been uneventful. I have not lost any of the six cases I have operated upon, but, with two exceptions of the half-dozen operated upon, they were desperate cases to commence with, going on for three to five weeks after rupture had occurred, and in all of these cases Nature was making quite an effort to relieve the patient by causing an anastomosis with the intestine. In two cases, when the abdomen was opened there was a very disagreeable smell, and the drainage after, from the very first, was very offensive, and in a few days we had a fistula. They both recovered, but they were *not* "uneventful," and I thought them exceedingly fortunate to escape with their lives. The ligature was cast off before the fistula healed. In reference to the removal of the appendages from both sides, I would do so if we had gross disease, otherwise I would not. In

two operations I removed both sides for this reason, and in the other four I did not.

Meeting of January 12th, 1893.

BYRON STANTON, M.D., *President, in the Chair.*

DR. THADDEUS A. REAMY reported a case of

ABDOMINAL TUMOR WITH OBSCURE DIAGNOSIS.

The 23d of last September I was requested to examine a young lady who presented herself at my office, accompanied by her mother, and who handed me a letter from the family physician requesting a written opinion. Nothing contained in the letter gave any clue to his opinions.

Patient was 24 years of age, unmarried, apparently in good general health. It was plain to be seen, however, that she had undue abdominal enlargement. Both she and her mother stated that menstruation had not been suspended, although there had been slight irregularity as to the time. The abdominal enlargement was symmetrical, extending to the umbilicus. Indeed, it was about equal to eighteen weeks' gestation. The patient could not assert when this enlargement commenced. The mother, however, thought it had been noticed about four to five months previously, but that its increase had been quite marked during the past two months. On the examining table, abdomen exposed, palpation showed a large amount of fat in the abdominal wall. No intestinal resonance could be detected below the umbilicus. Deep and conjoined palpation showed that there was a growth in the abdomen, which felt of about the firmness of the pregnant uterus at five months. Positive fluctuation could not be detected at any point nor by any process that I could employ. Digital examination showed the vagina ample, its walls relaxed, showing no resistance to introduction of finger. No evidence of hymen. Uterine cervix markedly softened, os circular but patulous. Uterus enlarged, expansion bilaterally and anteriorly. The marked anterior projection of anterior wall, with boggy feel, so characteristic of pregnancy, was well developed.

On moving the tumor from side to side the impulse was plainly communicated to the cervix. It was found impossible, indeed, to move it in any direction without this impulse to the cervix. Ballottement yielded negative results. Under a strong light the anterior vaginal discoloration of Chadwick was strikingly well displayed. The mammae were now examined. The glands were tense, large, pigmentation marked, follicular enlargement decided. Left breast, three large follicles outside of pigment disc. On right side, two enlarged follicles outside of it. This last sign I have for many years considered as almost pathognomonic of pregnancy. Milk in considerable quantities

could be squeezed from the left nipple, small quantity from the right. No fetal heart sound could be heard, but a bruit like the so-called placental bruit (now known to be from the uterine arteries) was quite audible. Notwithstanding there were several well-marked negative symptoms, I was compelled to suspect pregnancy. Separating the mother and daughter, the mother answered that she had not herself seen the evidence of menstruation during the past two months, but that the daughter had stated to her that menstruation was regular, and that she could fully trust to her truthfulness on all questions. She also stated that the social relations of her daughter had not been such as to expose her. The daughter also asserted positively that menstruation had been regular. Expressing to her my fears of the possibility of pregnancy, she did not become angry and repel further inquiry, but coolly and positively stated that such a thing was impossible. She confessed, however, that she had on several occasions suffered nausea after arising in the morning. Under the conflict of symptoms I requested the privilege of placing the patient under the influence of an anesthetic, assuring them that if they would permit me to do so I could give them a positive opinion. This request was peremptorily declined; the parties leaving the city, apparently not in the best of humor. Two months subsequently I was permitted to see this patient in an adjoining State. The abdominal enlargement was markedly greater. Fluctuation in the tumor, though not well marked, could be detected. I now gave it as my opinion that the tumor was probably a cyst of the broad ligament. I operated. On section the abdominal wall was found to be of unusual thickness. The anterior surface of the tumor brought to view was more vascular than any benign growth I have ever seen. A vein as large as my little finger ascended in front of it; many smaller vessels in all directions. Fluctuation was now very distinct. Selecting a point comparatively free from vessels, I made an incision with the bistoury until I could see through this incision the whitish, characteristic wall of the cyst, underlying and almost separated from the before-mentioned muscular and vascular structure. I emptied the cyst by penetrating it with the trocar at the point of the incision already described. The fluid was as clear as from a mountain stream. I had no difficulty in securing a pedicle without enucleation of the cyst from the vascular part of the broad ligament, which an examination of the specimen will show you was included as part of the pedicle. The pedicle was broad enough, however, to justify me in ligating in two places. I preferred this course to enucleation in this particular case, because I did not want to leave such an elongated and vascular structure in the peritoneal cavity. Nor did I want to be annoyed by a hematocoele, which I considered far more likely to form after operation if I enucleated. The tumor had separated the folds of the broad ligament and pushed itself

downward, and had pushed the uterus to the right side, being so firmly implanted against the uterus that the uterus and tumor appeared to be in one mass. The uterus was found to be enlarged to about twice its normal size. The enlargement of the uterus, and the organic changes in the os, and the mammary changes, including the attempt at milk production, were doubtless, each of them, conditions stimulated by the growth of the tumor and its proximity to the uterus.

Never have I examined a simple cyst so tense and unyielding from excessive quantity of fluid proportionate to its size. This condition explains why fluctuation was so obscure. It also explains why the cervix moved with the tumor during examination. It is well known that this form of tumor is, as a rule, not very full of fluid. The patient made a very prompt recovery. No drainage employed.

Dr. REAMY also reported a case of

INTRALIGAMENTARY CYST.

This tumor, which weighed forty-five pounds, was removed from a woman, aged about 70, at the Good Samaritan Hospital. It was an intraligamentary cyst, and the blood supply was obtained from the omentum through vessels half as large as a finger. I was able to ligate it from low down, in the ordinary way. I had stopped all bleeding points and was closing the wound without drainage. When I was about to close the lower stitch I carried a sponge down, as is my custom in such cases, and it came up filled with blood. I repeated this and it was again filled with blood. On examination I found nearly a pint of blood in the pelvis. I was satisfied this could not be due to oozing, and, cutting two stitches, I could easily see the blood was coming from the pedicle. But when I brought the pedicle up I found it secure. I had taken the precaution to treat separately the ovarian artery and another large artery, and I could see the hemorrhage was coming from the side of the pedicle. On turning it over I found a very large vein had been ruptured below my ligature, and the fold of the pedicle kept it from bleeding until the fold was removed by stitching. The vein was as large as a goose quill, and the hemorrhage would probably have caused the death of the patient had it not been found. I think this justifies the practice of carrying down a sponge before closing the wound, to find if there is any hemorrhage present.

Dr. BONNIFIELD.—The second case reported was most interesting on account of the high position the tumor occupied. Such tumors sometimes dissect the peritoneum from the sacrum and ascend behind it even to the kidney. But it was not so in this case. Though it was almost entirely out of the pelvis, and its upper border nearly reached the ribs, the tumor had attained this position without disturbing the parietal peritoneum.

Another interesting point is the origin of the tumor. An intraligamentary cyst is so named from its location and not from its origin; it may be ovarian or it may be a cyst of the broad ligament, usually supposed to be derived from the parovarium. I was inclined to think this an ovarian cyst. There is some structure in the wall not unlike ovarian stroma, although of course this could only be determined by microscopic examination. Another interesting point is that sometimes these tumors with papillary growths are most malignant. While there is nothing distinctly papillary about this one, still there were, on the outside, growths of a papillary appearance. The question now arises whether, if she recovers from this operation, she may not have some future trouble.

DR. REAMY, in closing the discussion, said: The warts in this case are very distinct. They are generally abundant on the inside, and frequently perforate the wall of the cyst, causing the fluid to escape to produce peritonitis. In this case they are distinct on the outside, but there are no warts on the inside of the specimen. Some writers state that a tumor of the parovarium is always a rupturing cyst, but that is not true. You can have a malignant tumor of the parovarium. The parovarium lies between the folds of the meso-salpinx. Its upper border is bordered by the horizontal tube known as the duct of Gärtner, and from that run the tubes which are the remnants of the Wolffian bodies; the duct of Gärtner corresponds, of course, with the vas deferens of the male, and these are included in the folds of the meso-salpinx and are below the folds of the broad ligament and the Fallopian tube. They communicate below with the paroöphoron, that portion of the ovary which does not ovulate and which contains a very large amount of fibrous tissue; and the ends of the remnants of fetal life, the Wolffian bodies which go to make up the parovarium, which contain no follicles and never participate in ovulation. I think in all probability these arise from that portion of the ovary. The so-called rupturing cysts, that grow so slowly and are never tense, sometimes recover after rupturing, and afterward are transformed into those thick-walled cysts. On the other hand, what are intraligamentary cysts, beginning between the walls of the broad ligament, are the very simplest cysts you can conceive of, come ordinarily in young persons, and are often a number of years attaining their size. But the cyst we are now talking of may arise from the parovarium or the ovary itself; although ordinarily the cyst of the ovary does not take on this form of growth, as neither does the cyst of the paroöphoron.

DR. J. M. WITHROW reported a case of

CEPHALHEMATOMA.

About four weeks ago I delivered a child in a perfectly nor-

anal labor. The vertex presented, and the labor was complete without the use of instruments or anesthesia. At the time of delivery there seemed to be only the ordinary caput succedaneum. The next day my attention was called to the fact that the child's head was decidedly misshapen, and on examination I found a fluctuant tumor upon the posterior part of the right parietal bone. I palpated and endeavored to make the child cry out, but found no impulse given to the tumor. It did not extend to the other side, and was not even in its contour, being a little more dense and more permanent directly over the upper angle of the parietal bone, near the median line. My diagnosis of a cephalhematoma I still persisted in, and the parents were very anxious for the speedy removal of the growth. I continued to attend the case about once a week to satisfy the people. Two days ago I found the child with a head entirely perfect, the cephalhematoma having completely disappeared. The mother stated that it had declined very slowly, being gradually absorbed. During this time, however, the contour of the tumor became more even and fluctuant, and the harder part subsided into the general smoothness of the whole tumor. The mother stated that the tumor disappeared rather suddenly. Within forty-eight hours after she noticed the beginning of the decline of the prominence the tumor was entirely gone. I report the case without offering any explanation. It was my belief that it would disappear gradually, occupying probably two or three months, while this one disappeared in as many days. I at first thought they had had it operated upon and evacuated; but this they denied, and there was no evidence of either puncture or incision. It existed altogether about thirty days after the delivery of the child.

DR. E. S. MCKEE had treated one case of cephalhematoma, but had not had the fortunate result which took place in the case reported by Dr. Withrow. The birth occurred in London, Eng. The presentation was a breech, but the child was born without trouble or danger. The mother was 47 years of age; had given birth to thirteen children in twenty-seven years of married life, six having died and two being still-born. The child was born June 3d, 1881, and seemed to be remarkably healthy. On the 5th it seemed fretful; at 5 p.m. it began having convulsions; had two per hour all night till noon the next day, when it began having two per hour, and died at 6 p.m. The mother stated that three of her other children had died of convulsions, and she gave this one up to die as soon as they came on. Autopsy twenty hours after death. Between the scalp and pericranium found a large effusion of blood, coagulated, extending over a great part of the left parietal bone, and not surrounded by any indurated ridge. In the cavity of the arachnoid, corresponding in position to the outer tumor, a large and extensive clot of blood was found, causing a depres-

sion of brain in its deepest part, which was one inch to the left of the posterior fontanelle. The depression was one-half to three-quarters of an inch deep. The effusion was larger than externally, reaching down to the foramen magnum. No ruptured vessels could be discovered. Other parts normal. An interesting question is, Did the other three children who died of convulsions have cephalhematoma, and was there a hereditary tendency to this disease?

Varieties.—Subaponeurotic, the simplest, but not the most common form—a bloody effusion immediately underneath the cranial muscles; subpericranial, situated between the pericranium and the cranial bone—the most common form; diploic, situated within the diploë—a rare form, and differing from others in that it continues to bleed when laid open; subcranial—generally situated between the skull and dura mater, and sometimes in the cavity of the arachnoid.

Treatment.—The evacuation of the blood by the knife is usually unnecessary and may do harm. As a rule, non-interference is best. If pus forms it should be evacuated. Pressure and the expectant plan of treatment is the best general rule. In the case reported by Dr. Withrow I should be tempted to believe with him that the child had been tampered with by some one else and that the effusion had not disappeared of itself. For the further consideration of cephalhematoma the speaker referred to his writings on the subject—viz.: Cincinnati *Lancet-Clinic*, 1893, n. s., xi., 317-324; Nashville *Medical and Surgical Journal*, 1886, xxxviii., 53-59; *Medical Register*, Philadelphia, 1888, iii., 417-439; Wood's "Reference Handbook of the Medical Sciences"; New York *Medical Record*, 1885, xxviii., 342-344; *Medical and Surgical Reporter*, liii., 1885, 715-717; *Gaillard's Medical Journal*, xlii., 1886, 198-200.

At the annual session the following officers were elected for the ensuing year: *President*, Dr. Wm. H. Taylor; *Vice President*, Dr. John M. Withrow; *Secretary* (re-elected), Dr. E. S. McKee; *Corresponding Secretary*, Dr. Julia W. Carpenter; *Treasurer and Librarian*, Dr. George E. Jones.

Meeting of February 10th, 1893.

ADDRESS OF THE RETIRING PRESIDENT, BYRON STANTON, M.D.

. . . While the year just passed has not been marked by any great strides in any one direction, there has been a general advance all along the lines. Obstetrics has received no less attention than other branches of medicine. Neglected as it was for years, it is now receiving attention corresponding with its importance.

In connection with this subject, the study of mortality stati

tics has an especial interest. Whenever we find that for a series of years the mortality rate from any one class of diseases is reduced, we may well ask, What influence has caused the reduction, and may not more be accomplished by further efforts in the same direction? Of course deductions in regard to matters of this kind should only be drawn from the examination of records extending over a series of years and embracing a large number of persons, and from statistics that are full and entitled to some credence. In England, where such statistics are the most full and reliable, we find that the death rate from puerperal diseases has diminished for the last few years. This may be rightfully attributed, I think, to antiseptic midwifery and its logical sequence—aseptic midwifery. As listerism, though not now practised as originally taught by Lister, has led to good results in surgery, so has antiseptic midwifery led to methods that have greatly reduced the deaths from those conditions that we now know to be in great measure preventable. Cleanliness in obstetrics is the keynote to the great diminution of the deaths from puerperal septic troubles.

Dr. Thrusfield, who has examined the mortality records of England, has found that the death rate from this class of diseases reached its maximum about 1881 to 1885. From that time puerperal mortality has steadily decreased. Can this be attributed to any other cause than the dissemination of information, not among those having control of obstetrical wards of hospitals, who have seen its advantages, but among the general profession, in regard to the value and methods of antiseptic midwifery? Here will be found a greater saving of life than in all of the operative procedures devised for the relief of parturient women.

Statistics show that the mortality from puerperal *diseases* has always been greater in cities than in rural districts. This would naturally be expected, the surroundings being more favorable for the development of conditions favoring puerperal diseases, and here it is that antiseptic midwifery has won its greatest laurels. The death rate from puerperal *accidents* has, however, been greatest in the country districts. This is also susceptible of explanation by the fact that in country practice the physician seldom sees his patient at the beginning of labor, and hence existence of malpositions or other conditions unfavorable for mother and child are not discovered so early, and the rectification is rendered more difficult, if not impossible. In city practice the physician more frequently sees his patient, not at the beginning of labor, but before this. He is more likely to know her condition, he is aware of any departure from health that may make labor more difficult or dangerous, and is often able to avert a threatened calamity.

Statistics also show that both among urban and rural populations the death rate from puerperal diseases has been reduced in

the last decade, coincident with the growth of antiseptic midwifery; but in regard to the *accident* rate a like reduction has not been observed. The only conclusion to be drawn from these facts is that among all antiseptic midwifery should be practised, and that everywhere the pregnant woman should be made more a subject of study; we should not merely know that at a given time Mrs. — will send for us to attend her in her confinement, but we should know whether she approaches the period in good condition for the ordeal that awaits her. We cannot always know the condition of patients that may come under our care, for we are not always aware before labor commences that we are to be called. Especially is this the case in our city, for about three-fourths of the obstetric practice here is done by midwives, and physicians are often called to their assistance only when valuable time has been lost. But when a physician has been engaged to attend a patient in labor his duty is to be well informed as to her condition. He becomes the custodian of her health and that of her offspring, and he should take every precaution for her safe delivery. The history of previous labors, and the existence of symptoms of malposition of the uterus or of pelvic deformities, should be inquired into. And last, but not least, he should know the condition of her kidneys. He should not be content with one examination, or with a few, but frequent examinations of the urine should be made up to the day of her confinement, to discover the first appearance of renal disease that may lead to serious complications at the time of delivery. The physician whose patient has an accident at delivery that he might have prevented must feel a sense of responsibility for that accident.

Some recent experience has forcibly impressed upon my mind the importance of these things. Some of you may be able to recall two cases that I recently reported to this Society. In one there was albumin with uremic coma, and in the other there were intense albuminuria, tube casts, and albuminuric retinitis. Both of these cases improved rapidly under the treatment heretofore outlined, and were delivered without the occurrence of any unpleasant symptom. In another case, presenting symptoms almost identical with the one last referred to, treatment for less than one week caused a marked diminution in the amount of albumin, and delivery was accomplished without trouble. In a more recent case which came under my observation, there was no albumin discoverable on January 10th, although there was edema of the legs, hands, and face. On January 20th the urine contained albumin and a few casts, and the edema had greatly increased. Under treatment by purgatives, diuretics, the hot pack, and iron, the albumin and tube casts diminished, though the edema did not. On January 31st labor occurred, and under the use of chloral in the first stage and chloroform in the second stage, given at last to the extent of surgical narcosis, delivery

was effected by forceps without convulsions occurring, and rapid improvement has followed. Cases like these impress upon us the importance of an intimate acquaintance with the condition of our patients before labor begins.

Puerperal Eclampsia.—During the year several contributions have been made to obstetric literature on the subject of puerperal eclampsia, but no great departures from the old methods of treatment have been suggested or new views adduced in regard to the etiology. The bacterian view of the pathology of this condition has found but few supporters. Micro-organisms have been found in the blood of persons dying from this cause, but in these cases there were lesions in the kidneys or liver, and to these conditions may their presence have been due, or they might have developed after the death of the patient. If due to a bacillus that finds its way into the blood from an endometritis, as claimed by Gerdes and Faure, why should puerperal convulsions be of so much more frequent occurrence in primiparae, who are more free from endometritis? And why should convulsions cease so soon after delivery? And why should intra-uterine death of the fetus so frequently lead to a cessation of the fits? Olshausen tells us that eclamptic patients are especially susceptible to septic processes. May it not be that the presence in the blood of such patients of micro-organisms is a sequence rather than a cause of the attack? The relationship of bacteria to these cases has not yet been demonstrated.

Prutz, in the *Zeitschrift für Geburtshülfe und Gynäkologie*, gives reports of twenty-two fatal cases in which micro-organisms were absent. The condition of the kidneys varied in these cases, some being affected by acute and some by chronic processes, while in many others no pathological renal conditions were found to account for the attacks. His conclusion was that there was no relationship between the severity of the eclampsia and the amount of pathological lesions in the kidneys. His statement that in many cases no pathological renal conditions were found to account for the convulsion would indicate a very different experience from that of Olshausen and Dührssen, whose records of four hundred cases showed that albuminuria was present in ninety-eight per cent of the cases. This almost constant association of renal disease with eclampsia would seem to show a very great dependence of the attacks upon the renal trouble. But, on the other hand, we must not forget that in a few cases eclampsia occurs without renal complications, and in some cases pathological conditions of the liver, with or without renal changes, are found. Pilliet reports a case in which there were "complex alterations in the connective tissue, vessels, and parenchyma of the liver—a hemorrhagic hepatitis with extensive parenchymatous necrosis." Olshausen reports two cases during the year in which there was icterus, and two cases in which the

kidneys were normal. From these cases it would seem that the presence of nephritis is not a constant condition.

The recommendation of Barnes, as published in 1891, to interrupt pregnancy whenever there is present marked albuminuria, with or without convulsions, finds a few supporters. Goldberg, of Dresden, advises the same course. Induction of labor has been successfully practised by him in some cases.

All agree that when labor has commenced delivery should be expedited; the mortality is greatly reduced by early delivery. But there is not a general agreement as to the induction of premature labor simply because of the presence of albuminuria, although it may be intense. I have so recently expressed my views upon this subject in this Society that I need not now restate my reasons for believing that the delay in delivery furnishes valuable time for treating the renal and nervous symptoms in these cases, and that the cases calling for the induction of labor must be exceedingly rare.

In regard to treatment, Barnes values venesection, salines, and calomel, and during the eclamptic attack the administration of chloroform or nitrite of amyl.

Ectopic Gestation.—In the matter of ectopic gestation more of interest has been done than in any other direction; not so much in regard to the etiology, but much of a practical interest to those who do abdominal surgery. In this respect obstetrics has felt the influence of surgical advances more than in any other; the general consensus of opinion being that surgical interference is indicated as soon as the condition is discovered, and that this is the best way of dealing with these cases even when gestation is far advanced.

Symphysiotomy.—One of the most striking changes of opinion in recent times has been in regard to an old obstetric operation—viz., symphysiotomy. For the introduction of this operation into this country we are indebted to Dr. R. P. Harris, who read a paper on the subject at the meeting of the American Gynecological Society last September. Though suggested about three hundred years ago, it was first performed on the living woman a little over one century ago, since which time it has been mentioned only to be condemned, until about twenty-five years ago. In 1866 the operation was revived in Italy, and from that time to 1881 the result of about fifty operations showed a mortality of twenty per cent for the mothers and eighteen per cent for the children. From 1881 to 1885 the mortality increased to forty-four per cent, the operation having been performed by those not versed in the methods and without antiseptic precautions. With a more perfect technique and under antiseptis the maternal death rate has been reduced to less than two per cent in the last fifty-two operations and the fetal mortality to thirteen and four-tenths per cent. In the two years following September, 1890, the operation was performed in

Italy, France, Germany, and the United States thirty-four times without one woman being lost and but two of the children. In this country the operation has been done four times, all in 1892, with the result of saving all of the mothers and three of the children.

Again we see the advantages of antiseptic methods. Symphysiotomy will, no doubt, share the fate of all the recent surgical advances in obstetrics and gynecology, in that it will be unnecessarily performed. But it has come to stay. It supplies, within its appropriate range, one great need of obstetric procedure—that by which delivery can be effected in cases of pelvic deformity with the least danger to mother and child. The low mortality in an operation that is applicable to many cases in which the more formidable one of Cesarean section has been performed, shows that the modern revival of symphysiotomy is the most important advance in obstetric surgery since the general adoption of the abdominal section for ectopic pregnancy. It will also supplant craniotomy in many cases—an operation in which all of the children are lost, and one attended with a maternal mortality quite as high as has attended the recent cases of symphysiotomy. It may, as suggested by Tarnier, be accessory to, but will often render unnecessary, the induction of premature labor. It is an operation having a clearly defined but limited scope. Its limitations are deformities ranging from three and a third to two and a half inches. Less than two and a half inches will require Cesarean section, as with such reduction of the conjugate the amount of gaping of the pubic bones after section (about two and three-quarter inches) would not be likely to permit the delivery of a living child.

Ischio-pubectomy.—Within the last year M. Pinard has successfully performed a new operation—viz., ischio-pubectomy. It was performed on a woman in her sixth pregnancy with no living child, who had an obliquely contracted pelvis with ankylosis of the right sacro-iliac synchondrosis. It consists in sawing, by means of a chain saw, through the horizontal and descending rami of the pubis, two inches from the symphysis, on the ankylosed side. This permitted sufficient increase of the conjugate for the safe delivery by forceps of a child weighing eight pounds. This operation, as I understand it, is not intended as a substitute for symphysiotomy; but in a case presenting the deformity met with in this case, and with the sacro-iliac ankylosis of one side, it met indications not met by the other operation. . . .

DR. W. H. TAYLOR, in his

INAUGURAL REMARKS,

expressed his appreciation of the honor conferred on him by his election to the presidency. He spoke of the wonderful progress recently made in all departments of medicine, and in none had

greater advances been made than in gynecology and obstetrics; but, great as had been our achievements, there remained much yet to be possessed.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Stated Meeting, February 19th, 1892.

W. W. JOHNSTON, M.D., *President, in the Chair.*

DR. J. T. JOHNSON presented a specimen of

FIBROID TUMOR REMOVED BY SUPRAVAGINAL OPERATION

from a colored woman apparently 30 years old. The tumor had existed several years, but had produced no hemorrhage. It was wedged down in the pelvis and gave rise to bladder and rectal disturbances. The patient had been treated, at the Woman's Dispensary, by electricity and other means, without benefit. The dangers of the operation were explained to her, and she declared herself ready to take any chance that had in it the least hope of relief. So, on the day before, he removed the specimen presented. The tumor had very extensive adhesions and grew from a narrow pedicle. He removed both ovaries and tubes. The peculiarity of the tumor was that it seemed to exhibit commencing calcareous degeneration.

DR. W. P. CARR presented some

FIBROID TUMORS

removed some time since from a nurse who suffered much from hemorrhoids and great difficulty in evacuating the bowels, on account of pressure. He intended to remove only the ovaries, but he found it so easy to peel out the fibroids that he removed about twenty small and three larger ones, all of which were subperitoneal. A number were intramural and submucous. The operation was most satisfactory. The patient recovered in ten days and resumed her vocation of nursing in two weeks.

The

DISCUSSION ON ENDOMETRITIS.

its complications and treatment, was commenced by DR. J. T. JOHNSON, who gave a short résumé of the varieties and causes of endometritis. He said that it was sometimes produced in young women—though Emmet denies that it occurs in young virgins—by flexions and stenoses retaining the secretions, which

become putrescent and set up inflammation. He related a case of a woman, about 42 years old, previously well, who went out in the wet and had suppression of the menses, followed by extension of inflammation to the tubes, which he feared would result disastrously to the woman.

As to the complications or diseases resulting from endometritis, Dr. Johnson gave a long list, including nearly all the conditions with which the gynecologist had to deal, from pruritus vulvæ and leucorrhea to ovarian abscess and pelvic and general peritonitis. He spoke of the gonorrheal form of endometritis extending to the tubes, which by its destructive influence is a cause of extra-uterine pregnancy. He said that he laid stress upon the many consequences of endometritis because of what he had to say about treatment. He said that in the older books on gynecology scores of pages were devoted to the consideration of the treatment of the condition by drugs. Latterly that was all abandoned and the disease was treated locally as an open abscess. The treatment was conducted under the best antiseptic conditions, and the most efficient treatment was to dilate the cervix and curette the interior of the uterus and apply pure carbolic acid, as advised by Gill Wylie. Others recommended some of the stronger acids, but he thought them not so good, as by their more vigorous action they occluded or capped over the utricular glands, sealing up their contents and preventing escape of the same. After applying the carbolic acid the uterus is packed with iodoform gauze to promote drainage. This procedure is not attended with the danger at one time apprehended. Dr. Johnson exhibited a number of stem pessaries and drainage tubes to hold the uterus straight and keep the canal patulous. By these means the best results were obtained, but everything must be done in the most thoroughly antiseptic manner.

DR. W. SINCLAIR BOWEN said: The complications of endometritis are manifold, and their treatment constitutes a large proportion of gynecological work.

In recent years the great amount of attention paid to the causal relation existing between inflammations of the lining membrane of the uterus and the various forms of pelvic disease has done much toward their prevention and cure.

An endometritis may be the starting point of disease, either downward, producing vaginitis, urethritis, vulvitis, etc.; or the infecting germs are carried from the endometrium into the system, entering either through the veins, which carry them directly into the circulation, or through lymph channels, and thus ultimately produce general septic poisoning. Why the bacteria sometimes remain local and then again are conveyed into the general system seems to depend more on their virulence than on their number.

A still more important class of complications of endometritis is produced by direct continuity of tissue. An endometritis

gives rise to salpingitis, ovaritis, and pelvic peritonitis, resulting finally, perhaps, in pyosalpinx, tubo-ovarian abscess, or a collection of pus in almost any part of the pelvis. Inflammation of the Fallopian tube is easily developed because of the continuity of this canal with the uterine mucous membrane on one side and the peritoneum on the other, but it is usually accompanied by pelvic peritonitis or ovaritis, or both. Salpingitis existing alone may not attract attention, as pathological conditions characterizing it have been met with in women who have never complained. Seanzoni says salpingitis almost always accompanies a similar disease of the mucous membrane of the uterus. The tube may become entirely or in part adherent to the neighboring organs, and when the fimbriated extremity is obliterated, especially when the uterine end is also closed, there is an accumulation of fluid distending the tube. Chronic ovaritis or salpingitis constantly exposes the woman to the danger of peritonitis by the rupture of the sac wall or propagation through the fimbriated extremity of the tube. A number of cases are recorded in which fluid collections in the tube have found the way out through the uterus or vagina.

In the diagnosis of pyosalpinx one is aided by a previous history of endometritis which dates from an attack of gonorrhea, an abortion, or some indiscretion during a menstrual period, also by the clinical picture of a suppurating process somewhere in the physical economy, with the subjective signs of pelvic pain, sometimes of a burning character, with a disagreeable sensation of fulness about the lower bowel. Constipation usually exists, both on account of the pressure upon the bowel and because of the unwillingness on the part of the patient to defecate, owing to the dreaded pain which it elicits. There are usually present such general symptoms as loss of appetite, emaciation, depression, insomnia, and various nervous disturbances. Rectal and vaginal touch, as well as bimanual palpation, give the most positive signs of the existing trouble.

The conservative treatment of salpingitis, ovaritis, and pelvic peritonitis, consisting of rest in bed and the use of antiphlogistic agents, while supporting the strength of the patient, favoring nutrition, and restoring the constitution, will often bring about a good result. Many cases, however, resist all efforts at conservatism, either rapidly terminating in death or developing into chronic invalidism if not relieved by abdominal section.

DR. T. C. SMITH remarked that Dr. William M. Spriggs had presented the matter of draining the endometrium by means of strips of iodoform gauze not a great while ago. He inquired of Dr. J. T. Johnson if he had had much experience in the treatment of endometritis in the manner indicated.

DR. J. T. JOHNSON replied that he had had with iodoform gauze, which was left in for several days. To obviate compla-

tions it was of great importance that the treatment should be begun early.

DR. WILLIAM P. CARR asked Dr. J. T. Johnson how he would treat a case in a virgin, and what was conservative treatment. As for himself, he considered any proper operation conservative.

DR. S. S. ADAMS said he was glad to hear Dr. J. T. Johnson speak a word in favor of virgins. Whenever a young girl presented herself for treatment for excessive bleeding, it was the fashion with some to attribute the hemorrhage to preceding abortion. He related a case of a young girl who came under his care for metrorrhagia. For certain reasons he placed the patient under the treatment of another physician, who said the bleeding was due to preceding abortion. He did not concur in that opinion, but believed the difficulty originated in suppression induced by catching cold. As to treatment, he agreed that *tinkering* was unavailing, and thought the only reasonable method was to dilate the cervix and curette the endometrium.

THE PRESIDENT said there were several elements in the treatment, as dilating, rectifying displacements, curetting, cauterizing, and draining. Dilating and rectifying position may be all that is necessary. Other mucous membranes are not treated in the violent way recommended for the endometrium, and he thought less severe measures might be as efficacious.

DR. WILLIAM P. CARR said that the lining of the endometrium was not mucous, but was lymphoid; and, besides, powerful caustics were not used. It was not an unusual thing, however, for the rhinologist to cauterize the nasal cavity with the galvano-cautery.

DR. H. D. FRY said he was much interested in the subject of the treatment of endometritis. Most modern writers say that unnecessary treatment of the endometrium leads to conditions which may require abdominal section. He believed that if the condition could be treated early and successfully it would remove the necessity of so much abdominal surgery. The majority of cases are caused by septic infection following labor or abortion. Stenosis of the canal is a cause in young girls and married sterile women, because there is deficient drainage. In these cases the proper treatment would be to dilate, curette, and drain. He related a case of a woman who had much headache and eye trouble. Upon investigating her case he found her suffering from endocervical and corporeal metritis, brought about by use of cold douches to prevent conception. He advised dilatation, which was, however, delayed, and in the meantime he painted the vault of the vagina with iodine and put in boroglyceride tampons, the result of which was much improvement of all the symptoms. Recently, however, he was called to see her again, and found her suffering pain, her menstruation having been irregular. She had bilateral salpingitis. Had dilatation been done, as originally advised, it might have saved her from

her present condition. Of the different methods of drainage he had tried he preferred that of Wylie to all others. The application of carbolic acid to the endometrium by the ordinary applicator was not so satisfactory as by the use of one with perforations at the extremity and a syringe attachment. In the use of the former much of the acid is wiped off before it reaches the interior, while with the latter it can be ejected with the applicator *in situ*; or, after dilatation of the cervix, the application may be made through a cervical speculum.

Stated Meeting, March 4th, 1892.

The President pro tempore, S. C. BUSEY, M.D., in the Chair.

DISCUSSION OF DR. CUTHBERT'S PAPER.¹

DR. E. L. TOMPKINS said: *Mr. President*—When you appointed me last Tuesday afternoon to open the discussion this evening on Dr. Cuthbert's paper, I immediately began to look up the literature on the subject, and congratulated myself on finding so much. The postal card from the corresponding secretary announced the title of the paper as "Venereal Diseases in Children," without drawing any distinction as to whether acquired or inherited. Dr. Cuthbert very kindly lent me his paper to look over, and his title was "Acquired Venereal Diseases in Children." Then, on looking further, I was surprised to find comparatively little literature on that subject, but I had already noted down some cases of congenital disease, and I hope I will be excused if I mention them. In the first place, I was surprised to find that there were some cases of gonorrhea, a good many of syphilis, but absolutely none of chancroids—a disease which is so very contagious that it seemed very strange to me that I could find no reports of its appearing in children at all. We will deal with gonorrhea first. I think it all-important to diagnosticate clearly between true gonorrhea and any other purulent discharge from the vagina or penis, as it may become a legal point. The only way to do this is to find the gonococcus by the aid of the microscope. If a child has gonorrhea it is clearly acquired; and if a female child, there is a possibility of rape having been committed. But the medical attendant must not be deceived into thinking that a child has been raped because there is a purulent discharge from the vagina, or even considerable ulceration of the parts. Taylor, in his chapter on Rape in his work on "Medical Jurisprudence," says: "The existence of a purulent discharge from the vagina, as a result of vaginitis or inflammation of the vagina, has been frequently adduced as a sign of rape in girls. The parents or other ignorant persons

¹ See original article, p. 668.

who examine the child often look on this disease as a positive proof of impure intercourse, and perhaps lay a charge against an innocent person who may have been observed to take particular notice of the child. A purulent discharge with aphthous ulceration of the mucous membrane is occasionally the result of vaginitis or inflammation of the vagina. It may arise from dentition or local causes of irritation, as worms or uncleanly habits, and is observed especially in children of the scrofulous habit. It is frequently met with in children up to 6 or 7 years of age; and children thus affected have been tutored to lay imputations against innocent persons for the purpose of extorting money." He also quotes the late Sir Charles Locock thus: that the purulent discharges of female children were attended with redness and swelling of the sexual organs, and were sometimes accompanied with excoriation and sloughing of the skin, owing to the irritating nature of the matter. They are so connected, according to Taylor, with dentition that they not only appear with the second set of teeth, but even when the wisdom teeth are irritating the system at a mature age. Even after finding the gonococcus we cannot declare always that it is due to rape, because it may have been transmitted by water closets or towels, or sleeping in the same bed with some one who is so affected.

A remarkable case of this sort appeared in the *New York Medical Journal*, volume xli., 1890, reported by Dr. Crandall. It resembled one of Dr. Cuthbert's cases in many respects, and was as follows in substance: A boy, 6 years old, was taken to the children's clinic at the Polyclinic with a history of urethral discharge for one month. The prepuce was inflamed and swollen, and a free flow of pus from the urethra. Microscope showed gonococci. Five days afterward his sister, aged 8 years, was taken there also, with history of vaginal discharge. Examination showed profuse purulent discharge from vagina, with swelling and redness of the vulva. The microscope showed gonococci in this pus also. Vaginal injections of sublimate solution of 1:5000 effected a complete cure. The origin of the disease was uncertain. The boy was supposed to have caught it from an uncle with whom he slept and who was known to have an urethral discharge. The sister acquired it from the brother, as both acknowledged having had intercourse with each other. But the boy's own history differed from that. He was very precocious and shrewd, and said his sister had caught it from a young man who had lived with the family, and that he had caught it from her.

I can recall two cases that came to my clinic for children in New York when I was house surgeon at the Post-Graduate hospital. Both were small children, from 4 to 6 years old, who had purulent discharges and histories of having been played with by older boys who had discharges. I found three children out of ten at the Day Nursery yesterday who had vaginal dis-

charges; one was 4 years old, the other 5, and a baby about 6 months old. I have seen a number of small girls whose mothers had brought them for vaginal discharges, but it is generally very hard to get a history of its having been acquired. I remember a lady who brought a little girl to me; it was about two years ago, and the child was 6 or 8 years old. There was a profuse muco-purulent discharge from the vagina, and so much swelling and inflammation that she would cry on the slightest touch. It was evidently affecting her general health, as she was pale and thin, and was rather old for her years. She was greatly benefited by daily injections of liquid vaseline and bismuth.

Ophthalmia neonatorum must also be considered under this head. J. Lewis Smith divides it into two forms, the catarrhal and blennorrheal. The term "blennorrheal" was applied when there was an exaggerated secretion of muco-pus. "It commonly results from the introduction of infective matter under the lid, during birth or afterward, by careless handling." He goes on to say that the gonorrheal virus may be so introduced, or the acid secretion of a leucorrhea, and quotes M. Kroner as saying "that he found the specific gonococcus in sixty-three out of ninety-two cases of ophthalmia neonatorum." When they were absent the disease was less severe and not likely to produce destructive effects upon the eye. I have never seen urethral discharges in very small boys, except in one case, and that was a small boy who had a vesical calculus, which was removed by Dr. Robert Abbe, of New York. Sometimes they have very acid urine, which inflames the meatus, just as acid urine sometimes excoriates the labia and thighs of a female child. I have known of one or two cases where nurses would play with the penis of small boys until erections were produced, and then make them have connection with them; but they happily escaped infection.

There is much more literature on acquired syphilis in children than on gonorrhea, although that is not very abundant. The latency of the disease (syphilis) is well illustrated in the following case, which, by the way, is congenital and not acquired. It is reported by Dr. R. A. Stirling in the Transactions of the Intercolonial Medical Congress of Australia. A young man had a sore on the penis, which rapidly healed. The lymphatics did not seem to be affected, and he had no other symptoms. About three months afterward he married. Two children were born of this marriage. About seven years afterward the father had nodes on the tibia, regular and symmetrical, which rapidly disappeared under mercury and iodide of potassium. One year after, gummatous ulcers broke out on his legs. When his son was eight years old he began to have affections of the fingers, and here I will quote Dr. Stirling's own words: "I found the terminal phalanges of the digits of the left hand, excepting the thumb, the seat of periostitis and osteitis, the swelling being

situated more on the back than on the front, and not involving the nails. Each finger was more or less swollen along its whole length, but this seemed to be due to edema and joint effusion, which much impeded movement. There was only slight redness and mottling at the ends of the fingers and at the back, and the pain was much less than in whitlow, although subsequently in the index finger there were all the symptoms of whitlow, with caries and loss of bone—a true syphilitic onychia. The gummy deposits in the other fingers rapidly disappeared under treatment, and showed no tendency to break down. The fibrous sheaths of the tendons were not at all affected. Pressure over the ends of the fingers caused severe pain, but not at their bases. The course of the disease was chronic, owing to the condition of the first finger, which at one time looked as if amputation would be required; but in the other fingers full doses of gray powder and the iodide of potassium, with occasional injections of mercurial oleate on the affected part, rapidly reduced the swelling, which had nearly all disappeared in six weeks. During treatment, however, the ring finger of the right hand showed signs at its initial joint of periosteal trouble, but the symptoms passed away. One curious effect of the disease was to leave elongation and incurving of the nails.” As Dr. Stirling says, the main points of interest in this case are the immunity for many years of the father from syphilitic symptoms; the immunity of the son in infancy; no snuffles or wasting, no eruptions or mouth sores, nor deformity of teeth.

This case looks as if it might have been acquired. The latency of syphilis is also well shown by the following acquired case, and also reported by Dr. Stirling: A man had a chancre and soon afterward affected a woman, so the genuineness of the disease was undoubted. He was put on treatment for three years and not another symptom appeared, then allowed to marry. A son was born at full term and healthy. Some weeks after a rash broke out on the arms, but got well on zinc ointment. Six months afterward a sore appeared on the lower lip of the child, followed by induration of the glands, etc. About the same time a sore broke out on the angle of the mouth of the father, and it was undoubtedly the contagious secretion of this sore that inoculated the child. A macular syphilide broke out over body of child, but got well with injections of blue mass and internally hydrargyrum cum creta.

In the report of the same Congress is an interesting case of acquired syphilis in a child 3 years, reported by Dr. J. P. Ryan. Mother and father had been healthy; child, girl 3 years old, had always been healthy and never had a skin eruption. About Christmas time father broke out with skin eruption, and three weeks later mother had the same eruption. About middle of May a pimple broke out on the forehead of the child, above left eyebrow. A week later it had increased in size and was slightly

raised, flattened, depressed centre, and tending to scale. This still grew in size, became more depressed in the centre, base indurated, and presented the typical "parchment" chancre: two weeks later a roseolar rash broke out on back, chest, and abdomen and thighs. Child got well on mercurial inunctions and hydrargyrum cum creta. Dr. Ryan claims that child was infected by parents kissing it.

In the *Archives of Surgery*, by Jonathan Hutchinson, vol. ii., 1890, it is said that women who have themselves suffered from syphilis and borne syphilitic offspring retain the liability to transmit the disease much longer than men do. If a series of children, one after the other, all suffer from inherited syphilitic taint and show infantile symptoms, it is almost invariably the fact that the mother has had the disease. On the other hand, the cases are numerous in which the eldest only suffers and the rest are healthy, and in these the inheritance is usually from the father, the mother never having shown symptoms. Of course, even in these it is to be admitted that probably the mother has received a protective infection (Colles' law), but not such a one as involves communication of the disease in an active form. They give a statistical table in the same *Archives*, prepared by the Registration Office of Ireland for the use of the Vaccination Commission, which shows that the number of deaths from inherited syphilis is steadily diminishing. In 1865 the number of deaths was one hundred and forty-one, while in 1888 it was only forty-seven. This is explained in this way: 1. Improved treatment of infants affected. 2. Improved treatment of syphilis in the parents. 3. Far greater caution on the part of surgeons in permitting marriage during the early years after an attack of syphilis. In England it appears to be on the increase slightly. Thus in the years 1863-67 annual deaths from that disease per million births was 1,509; in 1873-77, 1,749; and in 1883-87, 1,884. Dr. W. F. Quaiße, in *Australian Medical Gazette*, 1889, vol. ix., gives interesting case of syphilitic deafness in a child—both ears were affected; it also had interstitial keratitis, Hutchinson teeth, and a naso-pharyngeal catarrh. The deafness entirely disappeared under anti-syphilitic treatment.

It is well known that secondary manifestations, such as mucous patches, excoriated nipples, secretions from ulcers, etc., can communicate the disease; so that children who have wet-nurses are very liable to contract syphilis from excoriated nipples and being kissed, etc., as syphilis is common in the class of persons who hire themselves out as wet-nurses. So, as J. Lewis Smith says, the physician also has the task of finding out about the health of the nurse, as well as to examine the milk as to its richness and quality. Infants not only contract syphilis from members of the family and nurses, but sometimes they themselves are the source of infection; as Keating says, "syphilitic infants

are sources of danger to non-syphilitic members of the family, and numerous cases are seen in which the baby has infected its grandparents, its nurses, and other infants."

There is one other source of infection, which I will simply mention, and that is vaccination by the scab. I believe that is frequently a mode of transmitting syphilis to healthy children. I will not go into the treatment of these diseases, but say that for syphilis it seems to me the inunction method is by far the best, and for gonorrhea mild astringents, cleanliness, and tonics seem to cover the ground. To make a correct diagnosis is the all-important thing.

DR. WILLIAM P. CARR inquired of Dr. Cuthbert if he had reported all the cases that had occurred at the Children's Hospital. He referred to a case of a boy, 4 years old, who had gonorrhea, which case Dr. Cuthbert had not included in his list.

DR. M. F. CUTHBERT said he remembered the case; the boy afterward had a stricture, but he could not find any record of the case.

DR. S. S. ADAMS said that Dr. Cuthbert had given the true history of the disease, but that Dr. Tompkins had raised the most important point, which was to make a correct diagnosis. He related the case of a boy of 9 years who was brought to him with urethritis; he was satisfied it was gonorrheal, but refused to give a positive diagnosis. A short time afterward the mother of the boy brought her daughter to him, suffering from a vaginitis. The boy confessed that he gave her the disease and that he got it from the girl at the next door. This girl probably caught it from some "wild" young men who resided in the house with her. The youngest case he had ever seen was in a boy 5 years old. It was important to make a correct diagnosis to avoid injustice to innocent persons. He referred to a case of urethritis which he thought was undoubtedly produced by horseback riding. The only difference was from a moral standpoint, the treatment being the same in both cases. The treatment was by injections of boracic acid solutions, but peroxide of hydrogen gave the best results in all cases of gonorrhea. He believed, however, that the disease ran a definite course.

DR. G. N. ACKER said the paper was an interesting one. He thought there had been more cases of gonorrhea at the Children's Hospital than Dr. Cuthbert had reported. In boys with congenital stricture there was commonly urethral discharge. The differential diagnosis was made by the finding or not finding the gonococcus. He did not think that treatment with peroxide of hydrogen was good, as men complained of its being too irritating.

DR. E. L. TOMPKINS said that Dr. Morris, who introduced the drug for use in bladder diseases, called attention to the fact that peroxide of hydrogen was irritating to the membrane of the urethra, but not to that of the bladder.

DR. WILLIAM P. CARR said he had used peroxide of hydrogen with most satisfactory results. If the article is a good one it can be used in the urethra, vagina, and uterus without irritation.

DR. M. F. CUTBERT, in closing the discussion, said he recognized the difficulty of diagnosis. This could only be removed by microscopic examination. He had only reported undoubted cases with their histories. He was surprised at the small amount of literature on the subject.

REVIEW.

HUMAN EMBRYOLOGY. By CHARLES SEDGWICK MINOT, Professor of Histology and Human Embryology, Harvard Medical School, Boston. Pp. 814; 463 illustrations. Wm. Wood & Co., New York, 1892.

In spite of the literary activity prevailing in the United States, up to the present there has not appeared a treatise on human embryology worthy of the name. The work under review fills the gap. With marvellous industry and painstaking research extending over a period of ten years, Minot offers the profession a comprehensive summary of embryology as it bears upon the problems of human development. Not alone has he familiarized himself with the principal facts by personal observation, but he has carefully compared and collated these with the experience of other workers in the same field. In unbiassed spirit the records of both schools of embryological research—the phylogenetic and the anatomical—are granted due prominence, the manuals of Kölliker, Hertwig, His, Goette, and Balfour and Duval having been freely utilized. The effort has been made to reduce as far as possible the number of technical terms. French, German, and English terms are preferred to Latin and Greek wherever feasible. The sum total of Minot's industry and zeal is a monument to embryology such as, up to the present, the world has never seen.

The opening pages deal with the gross and the minute anatomy of the gravid uterus and with the outlines of human development. We note that the author accepts the view that the ovum is impregnated in the upper end of the Fallopian tube (page 35), and that he admits the possibility of impregnation whilst the ovum is passing from the ovary to the fimbriated opening of the tube. It has always seemed to us that the probability was chiefly in favor of these opinions, and we thus find a ready explanation for the frequency of tubal gestation, as also certain groundwork for the assumption that ovarian pregnancy may occur. Obviously the chief value of such an opinion from an embryologist of Minot's standing is that it offsets the utterances

from Lawson Tait to the effect that diseased tubes are chiefly responsible for tubal gestation and that ovarian gestation is a myth.

Part I. describes the genoblasts, or sexual elements (spermatozoön and ovum after maturation), and discusses the theory of sex. Herein the author further states his personal opinion in regard to the mutual relations of the ovum and spermatozoön. Essentially it is as follows: Sexual reproduction is effected by the union of a male and female element, which produces a cell; this cell is, therefore, hermaphroditic, or asexual, or neuter, being neither male nor female. A cell which gives rise to the female element when it matures into an ovum divides into three bodies—two polar globules and one female element. When a cell divides into the male elements there remains one cell which does not form a spermatozoön. In the cells proper both sexes are potentially present. To produce sexual elements the cell divides into its sexual parts, the genoblasts; in the case of the egg cell the male polar globules are cast off, leaving the female ovum; in the case of the sperm cell the male spermatoblasts (homologous with the polar globules) multiply considerably, and their descendants give rise by further specialization to the male elements, while the parent cell atrophies. In both instances the sexual cell separates into a single female element, and into probably two male elements which are capable of multiplication by division; but in the one case the female element, and in the other case the male element, is preserved and differentiated and utilized. To make a complete cell there must be a union of the male and female, and this is accomplished by an "impregnation of the ovum."

This hypothesis has been adopted as plausible from a morphological standpoint by both Balfour and Van Beneden, although without giving Minot the credit for it.

In reference to the question of heredity we note the following hypothesis: The child is like the parents because its organization is regulated by not merely similar but by some of the same chromatin (nuclear substance) as that of the parents. "The validity of this hypothesis remains for the future to decide. There is one general objection to it, that of connecting a special function with a special substance, which is against the general conception of vital functions as the resultant of interlocking activities extending throughout each cell. . . . The objection is to my mind a real and serious one."

Part II. concerns itself with a consideration of the germ layers. The process of segmentation is clearly defined on the basis of the generalization, first reached by Minot, that in all animals the ovum undergoes a total segmentation, during which the cells of the ectoderm divide faster and become smaller than the cells of the entoderm. "The first step of development in the segmenting ovum is the differentiation of the two germ layers, ectoderm and entoderm, resulting in the diaderm stage."

In regard to conerescence the theory seems to Minot inevitable that the vertebrate primitive axis is formed by the growing together in the axial line of the future embryo of the two halves of the ectental line.

In Chapter VII. (Part II.) the general morphology and rôle of the germ layers, the history of the theory of the germ layers, and the laws of differentiation are briefly considered. All the germ layers of the embryo are now reduced to three primitive ones, the ectoderm, the mesoderm, and the entoderm—terms preferable to epiblast, mesoblast, and hypoblast. The human body is defined as made up of two tubes of epithelium, one inside the other; the outer tube (or ectodermal) is very irregular in its form; the inner tube (or entodermal) is smaller in diameter, although longer, has a number of branches (lung, pancreas, etc.) and is placed within the ectodermal tube. Between these tubes lies the mesoderm, divided into two cavities, the abdominal and thoracic. The gross differentiation, the histological differentiation, of these germ layers, and the history of the theory underlying them, are tersely stated, and then the author passes to the study of the embryo under Part III. of the work.

Of especial interest are the pages devoted to the description of the known human ova of the second and third week. This is the first synopsis ever made of our knowledge of the early stages of man, and Minot herein classifies and describes thirty-eight embryos. Amongst the principal conclusions reached we note: No human ovum has been observed to have a primitive streak. The ova of twelve to fourteen days are already completely enclosed by the decidua reflexa and serotina. The human ovum, indeed, is remarkable for the precocious development of the chorion, both as regards the villi and the mesodermic layer, and for its early complete encapsulation by the decidua. All these events, data at hand seem to prove, precede the appearance of the embryo. No ovum has yet been described with one external gill cleft. Reichert's ovum is probably younger than any hitherto described.

Part IV. is devoted to the fetal appendages.

In reference to the human chorion we are told that it has been the object of greater misconception than perhaps any other organ of the body. Some of the modern text books of highest worth reproduce many of the false notions of the past. Minot endeavors to correct these errors, and draws freely from the writings of Coste, Farre, Langhans, Waldeyer, and others.

The amnion is not considered as having been formed by the sinking of the embryo into the yolk sac. It depends for its being upon inequalities in the growth power of the germ layers. The liquor amnii is defined as the product of the osmotic function of the amnion. At a very early period the osmosis takes place from the fluid in the space between the amnion and the chorion. During a certain interval the fluid may come from the chorion.

and, therefore, indirectly from the fetus. During the latter part of pregnancy the transfusion occurs from the decidua through the chorion and amnion both. This theory of Minot's was first expounded at length in Buck's "Handbook."

The yolk sac and the allantois are considered together, although morphologically they are absolutely distinct organs. The following theory of the placenta is considered most tenable: The placenta is an organ of the chorion. Primitively the chorion had its own circulation and formed the discoidal placenta by developing villi, which grew down into the degenerating uterine mucosa; by the degeneration of the maternal tissues the maternal blood is brought closer to the villi; . . . a layer of the mucosa is preserved between the ends of the villi and the muscularis uteri to form the so-called decidua; the placenta receives its fetal blood by means of large vessels running in the mesoderm of the allantois. From this discoidal chorionic placenta the zonary placenta of carnivora, the diffuse placenta of the lower primates, and the metadiscoidal placenta of man have been developed.

The concluding pages of the work (fully one-half) are devoted to the fetus. The comprehensiveness of these pages is apparent from the following statement of the subdivisions of this portion of the work: Growth and external development of the human embryo and fetus; the mesenchymal tissues; the mesothelial muscles; the splanchnoceles and septum transversum; the urogenital system; transformations of the heart and blood vessels; the epidermal system; the mouth cavity and face; the nervous system; the sense organs; the entodermal canal.

Many of the woodcuts in this work are original with Minot, illustrating phases of his researches or specimens in his possession. The work is carefully indexed, and the table of references is exhaustive, even though we are told that it contains only the articles actually referred to in the course of the work. "The full bibliography of over three thousand titles is published by the Boston Society of Natural History, and contains the full title of each paper or book, together with the pages and number of plates."

The vastness of this work, its pages teeming with cross references, the terse and impartial analyses of all existing theories, forbid an analytical review. The labor and the research involved in its preparation might well make the author exclaim, when viewing the finished product: "*Eccegi monumentum aere perennius!*"

E. H. G.

ABSTRACTS.

1. WEHLE: THE SCIENTIFIC BASIS OF SYMPHYSIOTOMY (*Arbeiten aus der Königlichen Frauenklinik in Dresden*, 1. Band, Verlag von S. Hirzel, Leipzig, 1893).—The brilliant place occupied by the conservative Cesarean section since the publications of Säger and Leopold in 1884, the steadily improving results of this operation—results so excellent that many authors do not hesitate in saying “the perforation of the living child is no longer justifiable”—may make it appear strange that the Dresden Maternity, which leads most institutions both in numbers and success, should look for a substitute to this operation. But the yet comparatively high mortality of the sectio Cesarea, the often unpleasant results following, called attention again and again to the shortcomings of this operation.

Italy had sent repeatedly glowing reports of its success with symphysiotomy; and the desire to gain an independent and personal opinion about an operation so summarily condemned by all modern obstetrical text books was a doubly justifiable one, since the deplorable results of symphysiotomy date from a time when antiseptics was not even dreamed of and surgery was yet in its swaddling clothes. It was to be expected that what happened with Cesarean section about ten years ago would again be repeated with the rejuvenated symphysiotomy—namely, that improved technique, combined with asepsis and antiseptics, would lift this operation out of its humble position and change failure into success. Although the first symphysiotomy was performed by Jean Claude de la Courvée in 1644, the operation lapsed into oblivion until Sigault in 1768, then a student of medicine, wrote a memoir on the subject, suggesting the division of the symphysis pubis, with a view of allowing the bones to separate and increase the pelvic diameters in cases of contracted pelvis. The French Academy, to which he submitted this novel proposal, was strongly opposed to it; but gradually supporters rallied around him, and, assisted by Le Roy, he performed his operation in 1777 for the first time upon the living woman. This was in the case of a woman named Souchot, who had previously been delivered of four dead children. The conjugata vera was six and one-half centimetres. Dividing the symphysis, the bones separated six and one-half centimetres and a living child was easily extracted. The operation, which resulted so favorably to the child, terminated less fortunately for the mother. In making the incision the bladder was injured,

causing a vesico-vaginal fistula. The pubic bones did not unite, and the woman's walking was seriously interfered with. The operation after this was performed by a number of inexperienced operators, with results which did not encourage repetition; and the operation, hailed in the beginning with much enthusiasm, fell into disrepute.

Hunter, of England, was utterly opposed to symphysiotomy, as to all instrumental deliveries, and thus the operation was not encouraged in that country. Camper, who from the very beginning was a warm admirer of Sigault, introduced symphysiotomy in Holland, and after him Salomon advocated the operation. In all ten operations were performed in Holland.

In 1778 C. C. Siebold performed the first symphysiotomy in Germany. The woman recovered, but after Rittgen it found no further advocates.

In Italy the operation continued to have warm admirers after it had fallen into disuse in all other countries, and its champions have not deserted it unto the present day. From 1777 to 1849 sixty-five symphysiotomies are recorded, saving forty-four mothers (32.4 per cent mortality) and twenty-four children (64 per cent mortality)—not very encouraging results, it must be confessed. The arguments of Baudelocque, Oslander, Kilian, and the younger Siebold against this operation have been repeated by all other authors, and are continuously renewed up to the present day. Thus Credé and Seanzoni wrote that symphysiotomy was only permissible if the woman had died and the head was wedged in the pelvic cavity; and Fehling does not even admit this exception. Spiegelberg briefly mentions the operation on account of its historical interest. He says but little increase in space is gained, and its fatality is another argument against it. While Schröder, Fritsch, A. Martin, and Runge treat symphysiotomy with silent contempt, Kehrer, Zweifel, and Winckel are outspoken in their condemnation.

Kehrer writes that symphysiotomy is a dangerous operation, always resulting in permanent invalidism.

Winckel says: The good results expected from this operation have not been obtained, but lacerations of the bladder, injuries to the sacro-iliac joints, and necrosis of the pubic bones have been plentiful. Let us hope that symphysiotomy is buried forever!

Zweifel gives exhaustive reasons why the operation is impracticable and its restoration should not be attempted. Kleinwächter writes in a similar strain, and says amongst others: Italy should not be envied for the fame of being the only country advocating and performing this senseless operation. Yet Italy, and there foremost the Neapolitan school under Morisani's leadership, has continued to improve the technique of symphysiotomy, uninfluenced by all this severe criticism. In the beginning their results were far from satisfactory (from

1868 to 1880 fifty operations by three operators saved forty mothers and forty-one children—a mortality of twenty and eighteen per cent respectively; and Morisani from 1880 to 1886 had, out of eighteen cases, only ten recoveries). But with a perfected technique and by practising strict antisepsis better results were obtained, and the last report by Carnso showed in twenty-two operations twenty-two recoveries and twenty living children. Owing to Morisani's success the operation again found entrance into Paris, its old home, and in May, 1892, Pinard published three successful cases. Since that time a number of operations have been reported, all affirming the opinion held by Morisani that symphysiotomy may save the child's life without endangering the life or health of the mother.

To better understand the strong opposition encountered by this operation it is advisable to investigate the reasons which prompted the author to their condemnation. We find again and again the following statements:

1. The division of the pubic joints results in but little additional space. 2. Even if the operation is not fatal its subsequent ill-effects should be a contra-indication.

The statement of the insufficient augmentation of space was made first by Baudelocque, and was after him quoted by others. Kilian, Scanzoni, Fehling, Kehrner, Zweifel, and many other authors all subscribe to Baudelocque's adverse criticism without having made personal investigations. Baudelocque's opinion was based upon the three unsuccessful cases of Sigault and his followers—cases in which the pelvic contraction was so great that symphysiotomy should have been absolutely excluded—and experiments upon a pelvis with a conjugata vera of only 4.5 centimetres. In this case it was impossible to extract the fetal head after dividing the pubic joints, in spite of strong pressure from above and traction with the forceps from below. It is but natural that symphysiotomy was not successful in cases where the pelvic contraction was so great that but one operation was permitted, namely, Cesarean section.

Credé was desirous to observe himself the effects produced by dividing the pubic joint, and he therefore experimented upon a number of pelvis before condemning the operation. He writes: "The symphysis cannot be separated beyond a distance of four centimetres without danger of injury to the sacro-iliac synchondrosis." Yet the results of his investigations are not in accordance with the experience of Morisani, Pinard, and others. These authors found that a much greater separation of the symphysis can be had and the sacro-iliac joints still remain intact. The cause for these variable results is the fact that Baudelocque, Krapff, and Credé experimented with non-puerperal pelvises. Under the influence of pregnancy the pelvic joints partake of the general development of the generative organs. Their ligaments and cartilages become swollen and softened,

TABLE No. I.

Age.	Cause of death.	Position of symphysis pubis.	State of sacro-iliac synchondrosis by a separation of the pubic bones.		
			Under 6 cm.	6-8 cm.	Above 8 cm.
1 38	Abortion.....	1.5 cm. to the left of the median line.	.....	At 7 cm. laceration of the left sacro-iliac synchondrosis.	.....
2 69	Carcinoma ventriculi.	0.6 cm. to the left.	At 4.5 cm. laceration of left and right.	.....	.....
3 64	Arteritis arteriæ coronariæ.	1.3 cm. to the left.	At 4 cm. laceration of right side.	.....	.....
4 26	Fracture of skull.	Median line..	.....	At 7.5 cm. laceration of left side.	.....
5 73	Endarteritis. ...	1 cm. to the left.	At 3.5 cm. laceration of left side.	.....	.....
6 21	Eclampsia	Median line..	.....	.....	At 8.2 cm. laceration of right side.
7 36	Phthisis.....	0.6 cm. to the left.	At 4 cm. laceration of both sides.	.....	.....
8 63	Carcinoma ventriculi.	0.8 cm. to the left.	At 4.5 cm. laceration of both sides.	.....	.....
9 34	Uremia 26 hours post-partum.	0.9 cm. to the left.	.....	.....	Up to 9 cm. no laceration.
0 60	Carcinoma uteri et vaginæ.	1.3 cm. to the left.	At 4.5 cm. laceration of left side.	.....	.....
1 44	Paralysis.....	0.5 cm. to the left.	.....	At 6 cm. laceration of right side.	.....
2 73	Endarteritis.....	0.8 cm. to the left.	At 4 cm. laceration of right and left sides.	.....	.....
3 20	Peritonitis post-partum.	1 cm. to the left.	.....	At 8 cm. laceration of both sides.	.....
4 56	Locomotor ataxia.	1 cm. to the left.	.....	At 7 cm. no laceration.	.....
5 24	Phthisis.....	0.7 cm. to the left.	.....	At 7.5 cm. laceration right to left side.	.....
3 ..	Miliary tuberculosis.	0.4 cm. to the left.	At 4.5 cm. laceration of right side.	.....	.....
7 38	Extra-uterine pregnancy 16 hours post-operationem.	Slightly to the left side.	.....	.....	Up to 9 cm. no laceration.

TABLE NO. I.—*Continued.*

No.	Age.	Cause of death.	Position of symphysis pubis.	State of sacro-iliac synchondrosis by a separation of the pubic bones		
				Under 6 cm.	6-8 cm.	Above 8 cm.
18	75	Apoplexia cerebri.	0.8 cm. to the left.	At 5 cm. laceration of both sides.	.....	.....
19	40	Placenta previa. Ruptura uteri incompleta.	0.6 cm. to the left.	.....	.....	Up to 9.5 cm. laceration of right side.
20	81	Gangrena senilis.	1.3 cm. to the left.	At 3 cm. laceration of both sides.	.....	.....
21	22	Typhoid fever...	0.5 cm. ....	.....	At 8 cm. laceration of both sides.	.....
22	35	Phthisis.....	Median line..	At 5 cm. laceration of right side.	.....	.....
23	46	Carcinoma pleuræ.	0.5 cm. to the left.	At 4 cm. laceration of both sides.	.....	.....
24	36	Extra-uterine pregnancy second month.	0.9 cm. to the left.	At 4.5 cm. rupture of some of the ligaments of left side.	At 6.5 cm. laceration of left side.	.....
25	72	Carcinoma pylo-ri.	2 cm. to the left.	At 4 cm. laceration of both sides.	.....	.....

and the synovial membrane existing between the articulating surfaces is greatly augmented in size. In conformity with Morisani's writings are the results of an investigation of twenty-five pelves, which are in brief the following: In thirteen cases laceration of the sacro-iliac ligaments resulted when the distance between the pubic bones amounted to six centimetres and less. Ten of these pelves were from women above 60 years of age; they were all much emaciated and suffered from chronic disease. In a second group of eight cases the sacro-iliac joints separated between six and eight centimetres. These bodies were from younger and better nourished individuals. And in four pelves the articulation could be separated eight and nine centimetres before a luxation of the sacro-iliac synchondrosis was observed. These last four pelves were obtained from puerperæ. But even the experiments upon puerperal pelves give no proper conception of the ease with which the pubic bones separate in the actual operation upon the living woman. If we divide the symphysis in the corpse the bones separate about one centimetre, while in the living woman a spontaneous separation of three centimetres takes place. To obtain a greater distance than one centimetre requires in the dead woman a certain amount of force, but in the living woman counter-pressure upon the trochanters is necessary to prevent a too great separation of the bones.

TABLE No. II.

No.	Cause of death.	Internal pelvic measurements. Vera, transverse, oblique.	Increase of pelvic measurement by a separation of the symphysis to				Difference in height of the pubic bones by abducting one (see Fig. 3).		Increase of the conjugate diameters by separating the pubic bones (see Fig. 8).	
			6 cm.		7 cm.		3 cm.	3.5 cm.	6 cm.	7 cm.
138	Abortion.	V. 9.0 Tr. 13.3 Obl. I. 11.2, II. 11.7	R. side. 10.4	L. side. 10.2	R. side. 15.5	L. side. 14.3	.....	.....	1.4-1.2=1.3	.....
621	Eclampsia + 5 hours post-partum.	V. 10.0 Tr. 13.6 Obl. 12.6, 12.7	11.3	11.4	15.6	15.1	.....	.....	1.3-1.4=1.35	.....
1320	Peritonitis post partum.	V. 9.0 Tr. 13.2 Obl. 12.3, 12.4	10.3	10.5	10.5	10.6	.....	2.2	1.3-1.5=1.4	1.5-1.6=1.55
1524	Phthisis pulmonalis.	V. 7.5 Tr. 10.6 Obl. 10.0, 9.8	9.1	8.8	9.3	9.0	.....	2.5	1.6-1.3=1.45	1.8-1.5=1.65
1940	Placenta previa; rupture uteri incompleta, + 1 hour post-partum.	V. 8.5 Tr. 14.0 Obl. 11.7, 12.2	9.8	9.5	10.0	9.8	.....	2.2	1.3-1.0=1.15	1.5-1.3=1.4

Entirely erroneous are the statements of Zweifel and Fehling that an ossification of the symphysis makes the operation, in many cases, exceedingly difficult. If an ossification of the pubic joint occurred in the female pelvis, it is but natural to suppose that advanced age would produce it. Yet ten female pelves, all from women beyond 60 years, were examined, and in none was any ossification found. This accords also with the investigations of Luschka, who writes "that the symphysis pubis of the female is a perfectly developed joint, having articulating surfaces, synovial membrane, and four strengthening ligaments" (Fig. 1). It should be noted that the opinions of Zweifel and Fehling were based upon the reports of Bandelocque, Siebold, and Oslander, who wrote that in some cases it was necessary to divide the bones with the saw. But upon closely investigating their description it is found that no ossification of the pubic joint existed, but that the operators were unable to find the articulation. Decidedly interesting is an examination of sixty female pelves as regards the exact location of the symphysis. In

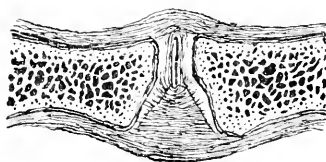


FIG. 1.

only eight cases was the joint in exactly the median line; in forty it was to the left, in twelve to the right, of a line drawn through the centre of the promontory. If we carefully examine the reports of Bandelocque's cases and the illustrations accompanying them, we find that the right pubic bone was always divided by the saw; again proving the probability that, failing to find the joint in the median line, he supposed that it had ossified and a division by the saw was necessary.

In the foregoing lines the author has endeavored to prove that the division of the symphysis is always easy, and that a wide separation of the joint can be had without injury to the sacro-iliac synchondrosis. He next wishes to show the increase of the pelvic diameters obtained through a separation of the symphysis of from six to seven centimetres, to disprove the statement "that a division of the pubic joints results in but little additional space." That the oblique and transverse diameters can be considerably increased all authors admit, but they also lay particular stress upon the point "that unfortunately little increase of space is obtained in the conjugata, which diameter generally offers the greatest obstruction in a contracted pelvis."

A contracted puerperal pelvis, obtained forty-eight hours post mortem and preserved in Wickersheim's fluid, was fastened to a post by passing screws through the upper four intervertebral foramina. The post was inclined so that the pelvic inlet was in a horizontal position (Fig. 2). After the division of the symphysis the motion described by the right and left innominate bone was to be noted. Dividing the joint, the left innominate was immobilized, and the right bone gradually abducted up to three centimetres. It was now found—what had not been observed—when both bones were separated simultaneously, that the bones not only moved sideways, but also in a downward direction. In other words, a lateral separation of three

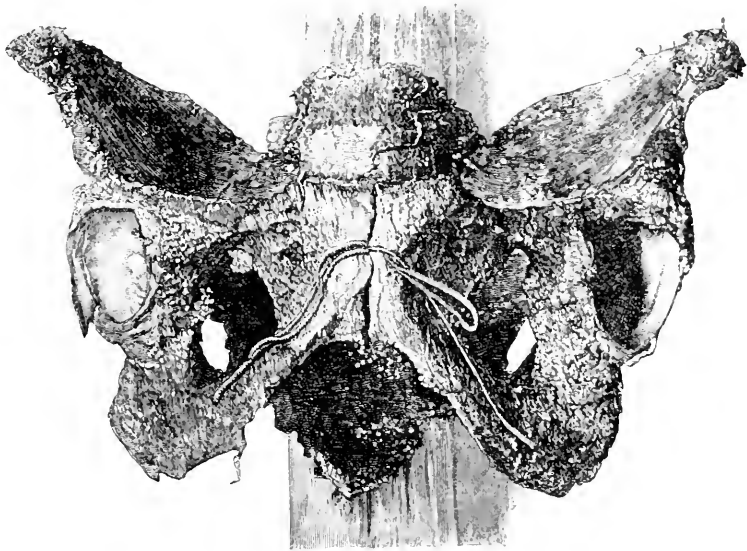


FIG. 2.

centimetres necessitated also a descent of two centimetres (Fig. 3). These experiments were repeated several times, always with the same results. It is necessary to remark that only lateral pressure was exerted upon the bony surfaces. If we investigate the cause of this downward motion, we find that the ileo-sacral joints rotate upon an oblique axis running from above outward and from below inward; and that the anterior borders of the articular surfaces separate, while the posterior part of the os innominatum, which projects beyond the articular surface, approximates the sacrum. During this action two points, one on the superior and another on the inferior border of the sacro-iliac synchondrosis, remain immobile, and around these points the afore-described movements take place. The

first point is a small prominence on the posterior superior border

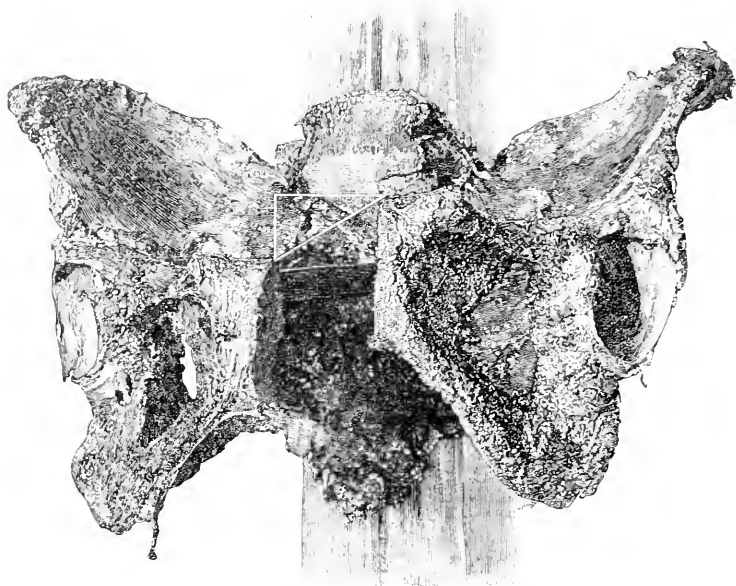


FIG. 3.

of the superficies auricularis, corresponding to which there exists

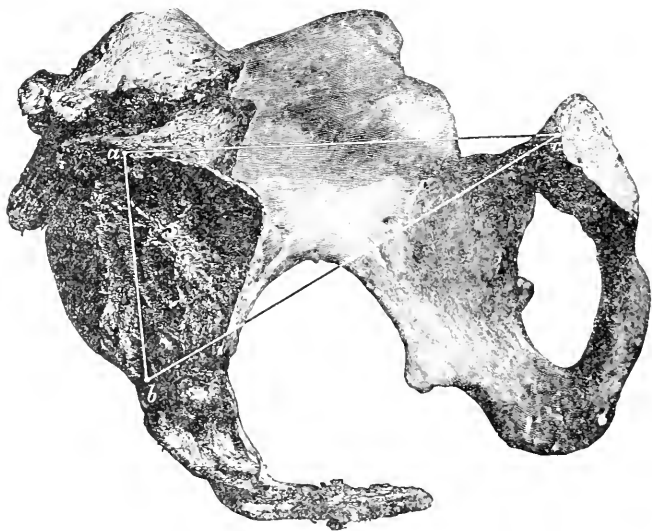


FIG. 4.

a depression upon the innominate bone (A B, Fig. 6 ; *a*, Fig. 4).

The second point is found at the posterior inferior border of the auricular surface (*b* in Figs. 4 and 7). These two points, connected by a line, are the axis around which the motion between os innominatum and the sacrum takes place. As the sacrum is wedge-shaped, this axis must run from above downward and from without inward- (Fig. 5, *a-b*), and the afore-described outward and downward motion of the innominate bones is easily understood. To make it plainer, let the sacrum represent a door post, the os innominatum the door, and the points *a b* the hinges; then it is clear that if the door (the os innominatum) is opened in front it must describe both an outward and a downward motion. The descent may be increased through pressure from above, but is finally checked by the ligamentum sacro-iliacum breve, it arresting the necessary upward motion of the spina



FIG. 5.

posterior inferior. Ahlfeld considers this descent of the innominate bones a very important factor in the increase of space of the pelvic inlet, and the following careful investigations are in accord with his views.

Fig. 6 shows a pelvis with a conjugata vera of 8.5 centimetres (half size). The pelvic inlet is seen from above. The pubic bones are separated six centimetres. *P* is the promontory, *S* the inner border of the symphysis, and the dotted line represents the undivided pelvic inlet. The symphysis being separated to six centimetres = *C-D*, the ends of the pubic bones have travelled the course *S C-S D* in the plane of the pelvis. At the same time the os innominatum has rotated on the sacrum around the points *A B*. Drawing a circle to connect *C D*, using as a radius the line *P C*, it is found that the original conjugata vera, *P S*, is now increased to *P S'*. If we take a side

view of the same pelvis (Fig. 7), we have again PS as the ori-

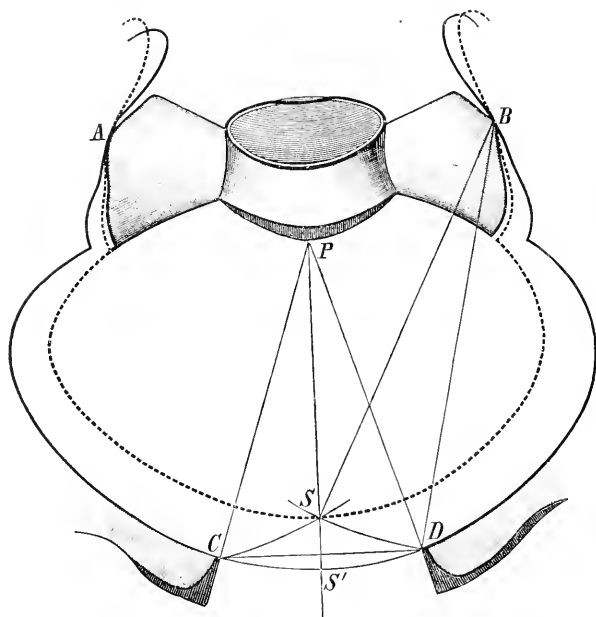


FIG. 6.

ginal, and PS' as the new conjugata vera. But, as the divided

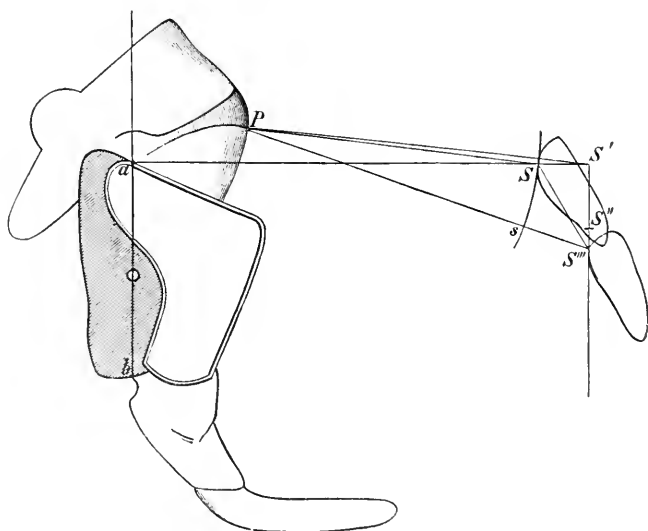


FIG. 7.

pubic bones both diverge and descend, it is clear that the in-

creased conjugate diameter is not represented by the line $S S'$, but by $s S'''$. In Table II, page 753, the increase in space in the conjugate diameters is shown. The symphyses were divided and then gradually separated (six to seven centimetres), and while the measurements were taken the bones were kept apart with a piece of wood (Fig. 8).

Out of these tables it may be seen that the increase of the conjugata vera amounts by a separation of six centimetres to 1.2 centimetres, and by seven centimetres to 1.5 centimetres; and if the pubic bones are depressed, as is necessarily done by the extraction of the fetal head, this diameter becomes still more lengthened. That the division and separation of the sym-

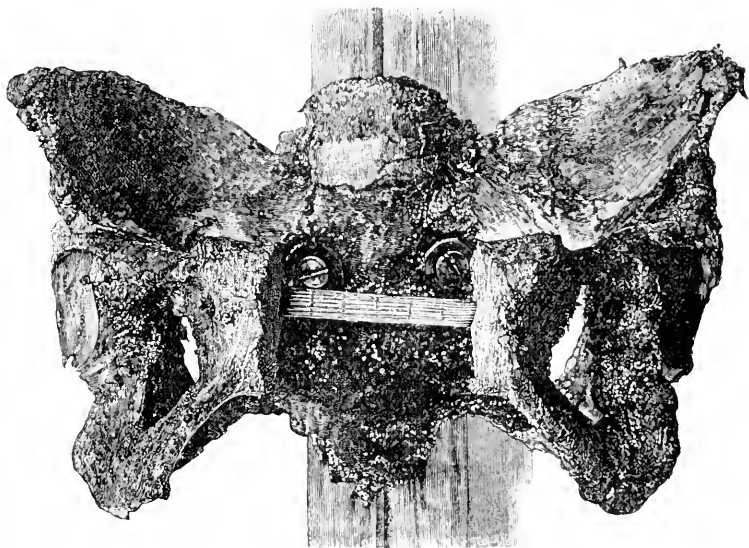


FIG. 8.

physis pubis result in a considerable increase of the transverse and oblique diameters is admitted even by those who are opposed to symphysiotomy, but the following example will make this the more apparent. Figs. 9 and 10 represent pelvis No. 15 of the foregoing table, and a separation of six centimetres increased the transverse diameter by 1.9 and the oblique diameter by 2.5 centimetres.

These investigations justify the emphatic denial of the statement "that the division of the symphysis pubis results in but little additional space."

The second assertion of the opponents of symphysiotomy, "that the subsequent ill effects of the operation should be a contra-indication" to this operation, can be disposed of with

a few words. Incurable vesico-vaginal fistula, incontinentia urinæ, prolapsus uteri, necrosis of the pubes, and impaired locomotion have undoubtedly followed the operation of symphysiotomy, but at a time when symphysiotomy was performed upon

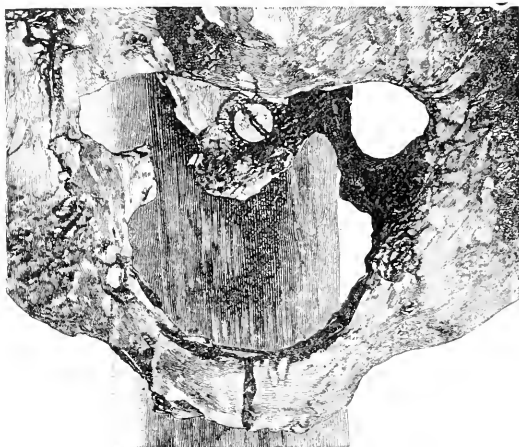


FIG. 9.

desperate cases unfit for this operation. Modern antisepsis and an improved technique can reduce these undesirable complica-

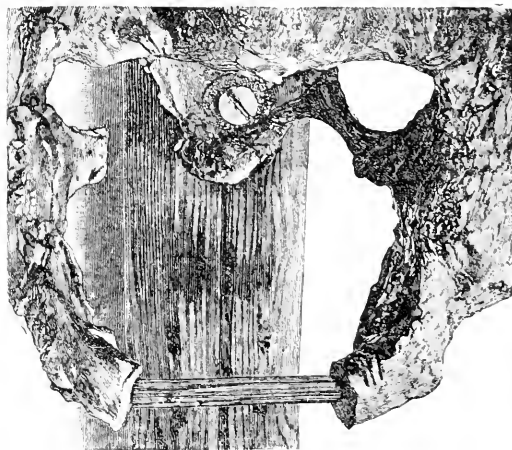


FIG. 10.

tions to almost *nil*, and nothing is truer than the words spoken by Morisani, "that the failnres are not the fault of the operation, but are due to the lack of skill of the operator—*dell' arte son solpa e non del arte.*"

Symphysiotomy is destined to displace the relative section Cesarean. It may save the child in cases made unfit for Cesarean section through prolonged labor and manifold instrumental interference, as experience has repeatedly shown that Cesarean section is but seldom successful in these cases. But it can never take the place of the sectio Cesarean under the absolute indication—that is, in cases of extreme pelvic contraction. It has been shown that the increase of the conjugata vera amounts to about 1.5 centimetres. Therefore the operation should not be performed if the conjugata vera is below 6.5 centimetres. Morisani places the lowest limit at 6.7 centimetres, and, as he has performed the greatest number of operations, it seems prudent to rely upon his experience.

The conditions necessary to the performance of a successful symphysiotomy are the following:

1. The woman must be free from infection.
2. The pelvis must not be ankylosed or have an extreme oblique contraction.
3. The fetal heart sounds must be good.

Desirable conditions are that—

1. The woman be a multipara.
2. That the soft parts are sufficiently prepared.

According to Caruso's tables there were amongst twenty-two cases twelve multiparæ and ten primiparæ. In the multiparæ the convalescence was uninterrupted, while eight of the primiparæ suffered from various complications during the puerperium—viz., two from delayed union of the wound, three from rise of temperature, three from uro-genital fistula. Morisani says that these disturbances were due to the deficient skill of the operator; but, as all the multiparæ passed through normal puerperia, it seems rational to suspect that in primiparæ difficulties are encountered which are not met with in women who already had given birth. The greater resistance of the genital tract and prevesical soft parts is mainly responsible for this difference in the prognosis.

The technique of the operation is described in the following words:

1. Emptying of the bladder, thorough disinfection of the abdominal walls and the external and internal genitals.
2. The operator stands between the extended legs, which are supported by one assistant on either side. These assistants place one hand under the knee and with the other make counter-pressure against the sides of the pelvis.
3. Incision down to the symphysis.
4. Division of the muscularis pyramidalis and detachment from the symphysis of the prevesical tissues.
5. The index finger is placed behind the joint, which is then divided, with a curved, probe-pointed bistoury, from above and behind to below forward. In looking for the symphysis it

should be remembered that its situation in the median line is the exception. The ligamentum arcuatum should, if possible, not be divided.

6. The fetal head is pressed into the pelvis and delivery accomplished. While the head passes through the pelvis the legs should be extended and the assistants must make counter-pressure against the trochanters.

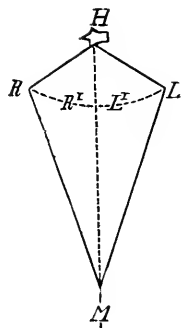
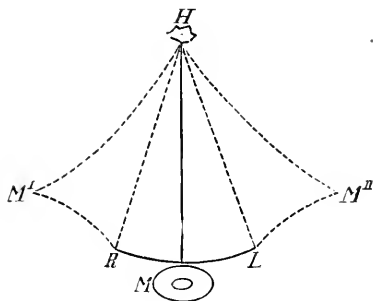
7. Arrest of hemorrhage.

8. Suturing of the wound by three or four strong silk ligatures. The sutures should be passed through the skin and include the anterior surface of the symphysis.

9. The pelvis is immobilized by a strong canvas belt buckled in front.

Wehle reports three successful operations performed by Leopold. In all of these firm union of the symphysis took place and locomotion was perfect.

J. R.



2. MACKENRODT, A.: A DESCRIPTION OF A NEW OPERATIVE METHOD FOR THE TREATMENT OF RETROFLEXIO UTERI (*Deutsche medicinische Wochenschrift*, No. 22, 1892).—The author, after reviewing the various operations for the fixation of the retroflexed uterus in its normal position and pointing out their dangers and shortcomings, describes a new method of his own, practised by him for about four years, and which has been satisfactory in every respect.

The patient is placed in the dorso-recumbent position. Two lateral depressors expose the fornix vaginae, and, seizing the portio vaginalis with a volsella, this is drawn strongly forward. A second forceps is applied just below the external orifice of the urethra to fix the anterior vaginal wall, and a uterine sound, introduced into the bladder, points out its attachments to the portio. The slightly curved incision R L cuts down to the tissues of the cervix, and the median incision H M extends through the anterior vaginal wall. The flaps H M R and H M L are

next separated from the bladder, and, loosening the vesico-cervical attachments, the upper angles of the above-described flaps are united to the uterus just above the os internum. The flaps $H M^1 R$ and $H M^2 L$, which were before in contact with the anterior wall of the bladder, are fixed to the anterior wall of the cervix, and the wound is closed by interrupted sutures, so that the original lines, $H M L$ and $H M R$, are again reproduced. To avoid pockets it is advisable to apply a few deep catgut sutures, to be left *in situ*; the other sutures, which are of silk, are removed in three or four weeks. After finishing the operation the uterus lies anteverted and remains in this position.

In cases where the anterior vaginal wall is short, the surface, $H L M R$, is denuded, and after the bladder is separated from its cervical attachments the raw surfaces are again united, so that L comes in contact with R . This procedure increases the anterior vaginal wall considerably.

In cases of short posterior vaginal wall a wedge-shaped piece should be removed from the cervix, extending up to the os internum. The uniting of this wound shortens the anterior vaginal wall and places the uterus in its normal position. If the vagina or the cervix are hypertrophied the amputatio colli and colporrhaphy should be combined with the retroflexion operation.

J. R.

3. VINAY, CH.: PUERPERAL TETANUS (*Arch. de Toc. et de Gyn.*).—The author reports a case of fatal tetanus following curetting of the uterus after an abortion in the second month of pregnancy. Although of extremely rare occurrence, this accident is not altogether unknown. Vinay has gathered together statistics of one hundred and six cases, of which fifty-nine followed parturition, forty-seven abortion; they were reported by Simpson, Garrigues, and Gautier. As to the etiology, since the affection is due to a bacillus which enters the organism through an open wound, it can readily be seen that the traumatism of parturition affords an opportunity for its entrance. The bacillus is anaërobic; when puerperal tetanus occurs coincidently with septicemia it is almost certain to be fatal, owing to the fact that the purulent discharges form a favorable nidus, free from oxygen, for the bacillus.

Abortions which are followed by tetanus usually occur in the first three months of pregnancy. Minor rather than major operations are apt to be complicated by it, as, for instance, artificial delivery, tamponade, versions, etc. Multiparæ of advanced age are the most liable to it. The most frequent predisposing causes, however, are squalor, filth, and dampness. Tetanus may be transmitted from the infant (trismus neonatorum) to the mother, or *vice versa*, or it may occur simultaneously in both. A case is on record where a physician carried the infection upon his hands from a laborer to a parturient woman. The accident occurs more frequently in tropical countries than else-

where, due, perhaps, to defective hygiene. The symptoms develop during the first or second week after delivery or abortion—a trifle more rapidly in the latter case than in the former. Prodromata are usually absent, although in a few instances general malaise and depression of spirits have been noticed. The first symptom is a feeling of tension in the masseters, difficulty being experienced in separating the jaws; the stiffness soon extends to the muscles of the neck. Trismus soon develops. The disease may extend, the muscles of the back being most frequently attacked, sometimes resulting in marked opisthotonos. Contraction of the flexors of the neck and trunk is rare, but has been known to occur. The lower limbs are in a condition of forced extension and tightly pressed together; the patellar reflex is exaggerated. There may be a convulsive action of the diaphragm, but this occurs at an advanced stage of the disease, when the other respiratory muscles are likewise involved and the patient is threatened with rapid asphyxia. The pulse is small and thready, rising from 70 or 80 to 150, especially during the periods of contracture. The temperature, in cases uncomplicated by septicemia, is normal at first, but under the influence of frequent spasms rises rapidly. When the tetanus is fairly established the condition of the patients is deplorable. They lie immovable upon the back, with stiffened trunk and limbs, subject every now and then to painful and exhausting spasms. They suffer from a thirst which it is impossible to satisfy, as even liquids cannot be swallowed; the eyes are movable, the pupils contracted, the face pale, the lips often cyanosed; there is often grinding of the teeth. Constipation is obstinate at first, but yields at a later stage to incontinence of both bladder and rectum. Consciousness is retained up to an advanced period, the patient suffering from apprehensions of danger. Death occurs from rapid asphyxia during a paroxysm, or more frequently, from intoxication and nervous exhaustion, in coma.

The acute rather than the chronic variety of tetanus is the form observed after parturition; its course is rapid, the tetanic spasms succeeding each other at shorter and shorter intervals. Death usually occurs from the third to the sixth day. The longer the course of the disease the better the chance of recovery. Improvement is evidenced by perspiration, cessation of pain, and remissions in the contractures of the muscles. Relapses are fatal. The prognosis is even worse than in the case of surgical tetanus; the traumatism and pains of parturition, the loss of blood, the presence of septicemia, all contribute to the unfavorable result. Of the one hundred and six cases studied by V. there were ninety-four deaths.

Lesions of the organs special to tetanus have been sought in vain. There is some congestion of the meninges, hyperemia of the cord and cerebrum.

The affection might be confounded with rheumatic torticollis,

which, however, is essentially benign and in which there is no trismus. Convulsive hysteria simulates tetanus, but rarely occurs after parturition, and is transitory in nature. Tetany makes its appearance only during pregnancy or lactation. The contractures begin in the extremities and may extend to the muscles of the trunk and neck. They are of an intermittent character.

Strict asepsis and antisepsis constitute the best prophylaxis. The curative treatment consists in: 1. Local applications to the wound for the purpose of eliminating or destroying the pathogenic agents. 2. Attempts to modify the condition of the blood, which has been altered by the toxine. 3. Diminishing the excito-motor powers of the cord.

The local application of antiseptics is of very little use after the poison has once entered the system, yet it should always be done, since amelioration of coexistent septicemia may cause an attenuation of the tetanic symptoms. Great caution should be exercised not to dilate the uterus with violence, as by reflex irritation we may produce the very contractures which we are anxious to avoid. It is possible that injections of the serum of animals upon which immunity to the disease has been conferred by injection of a tetanic culture or of trichloride of iodine, may at some time exert a curative action upon the altered blood. So far experiments have not been crowned with success.

Opium, belladonna, chloral, chloroform, curare, and a long list of drugs have been used to diminish the excito-motor power of the spinal cord.

Inhalations of chloroform have given the best results, but are attended by great danger of asphyxiation. Chloral in hourly doses of fifteen grains, given from ten to fourteen times in the twenty-four hours, has yielded good results. The dose must be large in order to be effective. If it cannot be given by the mouth, rectal injections of sixty grains may be administered. To this treatment may be added the inhalation of chloroform during the paroxysms.

Prolonged hot baths followed by wet compresses have a sedative action, but occasionally they provoke contracture. The patients must be guarded from all physical or mental excitement. Warmth of the body should be maintained by down quilts or cotton batting. Enemata should be used to overcome intestinal sluggishness, but the patient must be forbidden to move. Every effort should be made to relieve thirst and give a supporting diet, but it is brutal treatment to force open the jaws. The patient should remain in bed long after convalescence is established, for fear of a relapse.

A. R.

4. BOULANGIER: A FEW GENERAL PRINCIPLES RELATING TO THE TREATMENT OF ENDOMETRITIS AND TO COMPLICATIONS OF THE OVARY AND TUBES (*Gaz. de Gyn.*).

I. PUERPERAL INFECTION.—Little need be said under this

head, as all are agreed upon the value of vaginal and intra-uterine disinfection and curettage.

II. ENDOMETRITIS.—Upon this subject, unfortunately, there exists great diversity of opinion as to treatment. All, or nearly all, cases of endometritis are caused by a microbe of one kind or another which carries infection into the very innermost recesses of the glandular culs-de-sac. Antiseptic treatment is the only *rational*, but to be effective must reach to the most remote seat of infection, and must be accompanied by free drainage of all secretions.

Dilatation of the cervical canal; frequent antiseptic injections, with occasional applications of a more concentrated antiseptic, followed by dry dressing; and, finally, curettage if necessary, constitute the three steps in the treatment of endometritis.

III. OVARO-SALPINGITIS, PERI- AND PARAMETRITIS, PELVIC PERITONITIS.

1. *Oöphorectomy for Nervous Disorders*.—This operation is absolutely unjustifiable and should never be resorted to.

2. *Method of Propagation of Inflammation from the Endometrium to the Appendages*.—This question is of prime importance, and errors in regard to it lead to irrational and empiric treatment, abuse of ovaro-salpingotomy, and of hysterectomy by "morellement."

Most gynecologists are agreed that lesions of the appendages are usually salpingo-ovaritis in the beginning, propagated from the uterus through the mucous membrane. Intra-uterine treatment is therefore of little value, since it cannot reach the more remote seats of the trouble. From this standpoint removal of tubes and ovaries is logical; but it is unscientific, as it is based upon false premises. To prove this, Boulangier studies the matter from the following points of view: (a) What are the anatomopathological lesions observed in the uterine appendages, and where are they situated? (b) What are the channels of communication between the endometrium and the appendages? (c) What are the diseases which primarily affect the uterus and secondarily the appendages? (d) What are the chief general principles known in regard to the etiology and pathology of these affections?

(a) *Nature of the Lesions*.—These have been shown to be multiple and variously situated; in some cases inflammatory and hyperplastic, in others phlegmonous.

(b) *Channels of Propagation*.—The uterine mucosa communicates by continuity with the tubal mucosa, the serous covering of the fimbriated extremity and of the ovary, the broad ligament, and the pelvic peritoneum. It communicates, secondly, by vascular anastomosis with the veins and venous plexuses of the pelvis; thirdly, by continuity of tissue with the visceral peritoneum of the uterus and the cellular tissue of the broad ligaments; and, fourthly, by means of the lymphatics.

(c) The diseases affecting uterus and tubes are gonorrhea, puerperal endometritis with predominance of streptococci, endometritis with predominance of staphylococci and the *Micrococcus pyogenes*, simple endometritis from subinvolution, cold, traumatism, abuse of emmenagogues, presence of myomata, etc.

(d) *General Pathology*.—1. Gonorrhea. This usually at first causes vulvitis, urethritis, and vaginitis with a purulent secretion, rarely extending within the cervix if the uterus have been in a healthy condition. If, however, the uterus have been previously diseased, the gonorrheal infection rapidly invades the cavity and extends even into the tubes.

Acute gonorrheal endometritis is only rarely accompanied by lymphangitis, adenitis, and abscess, and the salpingitis propagated through continuity of the mucosa or lymphatic infection is not usually purulent. Antiseptic intra-uterine treatment, supplemented by the ordinary antiphlogistic and resolvent treatment, is usually efficacious in effecting a cure.

II. Endometritis with streptococci is observed almost exclusively in the puerperal state. The infection is rapidly invasive, and the micro-organism found in multiple abscesses, in pus in the peritoneum, in the false membranes of pelvic peritonitis, intravenous pelvic thrombi, and the thrombi of phlegmasia alba dolens. The affection is serious. The only rational treatment consists in complete and frequent antiseptics of the genital tract, combined with general tonic treatment; and expectant treatment as regards localization of the infection, or the subacute or chronic stage of the malady.

Hysterectomy by morcellement is useless, as it is not possible to remove all the infected parts, and new sources of infection are opened up. The disease is propagated through the veins and lymphatics rather than by the mucosa, and antiseptic intra-uterine treatment will usually give good results.

III. Endometritis with staphylococci and the *Micrococcus pyogenes* is characterized by less severe symptoms of infection and a tendency to the formation of localized suppuration. Abortive, resolvent treatment will have less effect than in the preceding varieties. Puncture, vaginal or abdominal incision, evacuation, drainage, extirpation, exploratory incision of the posterior cul-de-sac, constitute the methods to be resorted to, according to the indications.

In conclusion Boulangier sums up as follows:

1. The therapeutics of affections of the uterine appendages is the same as that of uterine affections.

2. In acute cases of pelvic peritonitis or ovaro-salpingitis we should begin with conservative measures, consisting in energetic antiseptic and antiphlogistic treatment.

3. The one exception to this rule consists in acute peritonitis from presumed rupture of a purulent mass. Laparotomy should be resorted to without delay.

4. In subacute cases with relapses and intermittent febrile movements, conservative therapeutics (eurettage, dilatation, disinfection, tampons, hot douches, salicylates, and iodides) is usually efficacious.

5. If the disease persist and abscesses become localized, recourse should be had to surgical intervention.

Major operations should be reserved for chronic cases. But a complete sacrifice of the organ should not be made until it is certain that less destructive methods are of no avail. As the president of the recent Parisian Surgical Congress remarked: "When we have the choice of two operations we should not choose the more serious one in order to gratify our pleasure in overcoming difficulties, or in order to place a false aureole upon our brows."

A. R.

ITEM.

DR. RAMON MARTIN GIL, one of Spain's most distinguished gynecologists, has translated into the Spanish the "Treatise on Electricity in Gynecology," written by Drs. Egbert H. Grandin and J. H. Gunning, and published by Messrs. Wm. Wood & Co.

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THE PRESIDENT'S ADDRESS

DELIVERED BEFORE THE ANNUAL MEETING OF THE AMERICAN GYNECOLOGICAL SOCIETY, MAY 16TH, 1893.

BY

THEOPHILUS PARVIN, M.D.,
Philadelphia, Pa.

FELLOWS OF THE SOCIETY :—Different emotions claim utterance as I attempt the duty of the hour.

Thanks are due you for having chosen me President when this honor was unexpected, and in my absence from the country. Accept my thanksgiving as the honest expression of a grateful heart.

But when I recall the able and illustrious men who have stood where I now stand, and remember their fitly chosen words of knowledge and wisdom—the practical lessons from personal experience of Emmet, Goodell, Howard, and Byrne; the large information and judicious counsels of Barker; the cogent criticisms and incisive sentences of Skene, of Reamy, and of Jackson; the fiery zeal and polemic power of that restless radical, commendation more than condemnation, Marion Sims; the graceful periods of Wilson; the strong and brilliant eloquence of the Chrysostom of our number, Thomas—to mention no other

names, may I not be justly anxious lest my address fall far below the standard that has been set, and performance prove so unequal to occasion and opportunity?

In this anxiety for the moment it seems to me that the distinction you have conferred, instead of being a crown of joy and power lightly worn, becomes a heavy load. *onus quam honos*.

Profound sadness comes when I reflect that of the sixteen chosen to preside over this Society before me, seven are dead. Barker, Peaslee, Sims, Smith, Byford, Kimball, Jackson—what a list of able men, *supra laudem et titulos*, from whom there is heard at the annual roll call of the Society not one *Adsum*!

Not only has one of the ex-Presidents passed away since the Society last convened, eight months ago, but quite recently Drs. Strong and Lee have been added to the list of the silent dead, one only in the morning, the other in the meridian of a brilliant professional career.

“ All heads must come
To the cold tomb—
Only the actions of the just
Smell sweet in death, and blossom in the dust.”

One of our guild, whose character, philosophic power, and literary ability we cannot too much admire, exclaimed, “Who cares to subsist like Hippocrates’ patients, or Achilles’ horses in Homer, under naked nominations, without deserts and noble acts, which are the balsam of our memories, the *entelechia* and soul of our subsistences?” Deserts and noble acts have made all these departed Fellows more than naked nominations. Their names abide as household words, and the good influence they exerted lives an immortal life:

“ Tongues of our dead not lost,
But speaking from death’s frost,
Like fiery tongues at Pentecost.”

Coleridge defined philosophy an affectionate seeking after the truth; and Plato said: “Truth is the beginning of every good thing, both in heaven and on earth; and he who would be blessed and happy should from the first be a partaker of the truth.” Believing it eminently proper for the President, if not an imperative duty, to express his opinions, offer his counsel, and even his criticisms should he believe them needed, upon questions concerning the interests and duties of the Society, that which remains of my address shall be thus occupied. I trust

that I may be inspired by an affectionate desire for the truth, and that I may be a partaker of the truth, speaking true words, rather than seeking pleasant, politic, and popular utterances, believing that the former will, if not now, bring better results. The words of Sydenham may be wisely adopted in this connection : "For having nicely weighed, whether it is better to be beneficial to men, or to be praised by them, I find the first preponderates, and much conduces to the tranquillity of mind. But as for fame and popular applause, they are lighter than a feather or bubble, and more vain than the shadow of a dream."

The important part which Dr. Chadwick has borne in originating this Society, and his constant help in its conduct, are so well known that only this appreciative allusion need be made. He wisely selected the term *gynecological* to designate it. But what does the word mean? What is *gynecology*? What the *gynecologist*? Bland Sutton speaks of those "engaged in that section of surgical craft known by the grandiloquent term, *gynecology*." Some would define *gynecologist* as one occupied with abdominal sections upon the human female, a *laparatomist*, or, according to recent neology, a *celiotomist*—a term which has a false whisper of hybridity and of heaven, and is a dulcet delight like "that sweet word *Mesopotamia*." Some advertise themselves, or are advertised, as *gynecologists* and *abdominal surgeons*, making the whole unbounded continent of pelvis and abdomen, male and female, their own.

Let me, by an appeal to etymology, resene *gynecology* from its narrow use, thus vindicating the selection of the term *gynecological* as the name of our Society, and bringing in clearer relief its purpose and what should be its work.

In Plato's "*Cratylus*" the derivation of *γυνή*, woman, from *γονή*, birth, is stated. Thus, then, *gynecology* should be regarded as a synonym for *obstetrics* rather than for diseases of women, and the *gynecologist* is primarily an *obstetrician*; and this is usually, if not invariably, true. The word *gynecology*, both etymologically and in its primary signification, relates to reproduction in the human female, and secondarily to the diseases or disorders which interfere with or prevent this function, or those which are consequent upon its exercise. Our Society is concerned with *obstetrics* and diseases of women, and it is thus stated in the constitution, though the order is reversed.

The number of founders of the Society was thirty-nine—of

these fourteen are dead—and the membership was originally limited to sixty. Thirteen years ago, when the Society met at Cincinnati, the President, the late Dr. Sims, while urging many more or less radical changes, among them the increase of membership to one hundred, which was afterward done, though not immediately, made this statement: "It is not to be denied that there is a very large element of discontent amongst men who are our equals in everything, and who might be organized into a formidable rival national association." These words were prophetic; the prophecy is history, and there is a formidable rival association. That association numbers many able members, and has done very creditable and useful work. The country is too large, the number of the profession too great, for the amalgamation of the two organizations, or for ours to subtract from it its best men and thus cause its atrophy; proselyting is neither pleasant nor promising, and there is work enough for each organization. Nor do I believe that professional polygamy should be encouraged; monogamy ought to be the rule, and even bigamy a rare exception. Possibly doctors may sometimes want double honors, or triple, as a bashaw is not content with one tail, but seeks two or three as symbols of his power and importance. A doctor has at times been called to a young child suffering with digestive disorder, and to his inquiry as to its diet he is told, "Oh, it sits at the table and takes everything that is going."

A divided is too often a doubtful allegiance, and I believe a man ought to be satisfied to be a member of either organization. Moreover, the American Gynecological Society—excellent members as it has received from its rival, excellent men as it may now or in the future have the opportunity of receiving—has not room for the reception of such candidates without excluding equally well-qualified men who do not belong to any similar organization. And thus again a plea for monogamy, so far as the election of new members is concerned.

There are now twelve vacancies in our number. Should all these be filled at our present meeting? I think not, but rather that six or more places be left vacant each year, so that new applicants need not be rejected from want of room. To be waiting for dead men's shoes is not an enviable condition for those who wait, or for those who are expected to shuffle off their mortal shoes.

Further, I believe that geography ought to have some influ-

ence in determining our selections—the best man always, no matter where he resides. But if two men equally well qualified present themselves, then let the one be selected from an unrepresented State or part of the country. We call ours the American Gynecological Society, yet we have one active member living outside of the United States—the American Gynecological Society, and one-third of the members live in one State, while a decided majority are found upon the Atlantic seaboard! Therefore, if two candidates of equal fitness present themselves, one from Massachusetts and the other from Texas, I am for the Texan, provided he will attend the meetings with reasonable regularity. If, in like conditions and with like promise, one candidate is from New York, the other from Virginia, my vote is for the Virginian; one from Maryland, the other from Louisiana, I prefer the latter; one from Pennsylvania, the other from Indiana, I choose the Indianian, and thus on through the list.

Dr. Sims, in the address to which I have referred, advised that the President's address be delivered at 8 P.M. on the first day of the meeting instead of the second day, thus giving one hour more for regular work. I have taken the liberty of adopting this plan, not only for the reason he gave, but because recommendations made by the President ought to be presented as early as possible for the consideration of the Fellows. If the President of the United States did not deliver his inaugural until the term for which he had been elected was half over, it would be regarded as anomalous, abnormal, and absurd.

It almost invariably occurs that more papers than can be read and properly discussed are presented upon the programme. Usually some of these are read only by title. Some weeks ago I wrote to one who has been almost a life-long friend, one of the ablest, most learned and scholarly men, a man of long and large professional experience, and one of the most fluent and graceful writers, soliciting a contribution from him. In his letter of refusal he remarked, "There are too many societies and too many papers." These are not words to be carelessly cast aside, but to be carefully pondered. The highest motive in writing, as, indeed, in all voluntary action, is to do good, to utter helpful words to fellow-practitioners that may result in healing the sick; the lowest motive, that which degrades the noblest profession into the meanest trade, is to secure clients. I believe that the contributions to this Society have been mainly remarkably free from the least indication of a commercial character,

but we sometimes see in a medical journal an article which seems to have no other object than advertising the author. This may be so apparent that one feels like appending to the communication, "Still doing business at the old stand. Consultations invited. Patients solicited." Of such a writer one might repeat to himself, if not to others, the words of Guy Patin: *Nequidem medicus, sed plane mendicus*. Of course we never expect shop articles to appear in our published volumes, but all the articles presented here are not of equal value, nor are all such as should be published in an annual. Some of them would appear with greater fitness in a weekly or monthly medical journal; others, possibly, might be abridged. Now, why not have two or three members associated with our able Secretary to decide as to the disposition of papers, to revise those that needed revision, to condense where condensation was required, to advise the publication of some—a simple report of a case, for example, unless one presenting extraordinary features or collated with others, so that important conclusions might be established—in a medical journal?

It seems to me that the Brussels Congress presented a feature worthy the imitation of this Society. Although the meeting of the Congress continued nearly twice as long as ours, only three chief subjects, selected several months in advance of the meeting, were given prominence, these subjects being ectopic pregnancy, placenta previa, and the treatment of pelvic suppurations. Eminent men presented and discussed these subjects by previous appointment, then others participated as they chose. Besides, a large number of other papers, most, if not all, quite brief, were presented. Now, why might not the council at each meeting select four subjects, two of them, for example, relating to midwifery and the others to diseases of women, and appoint four Fellows to present an exposition of these subjects, and others to follow in discussion, then let any who desired participate? Besides, there might be volunteer papers, always brief, upon other subjects. When men know many months, instead of a few weeks, in advance that certain themes will be considered at the next meeting, they have ample time for study, for investigation and reflection, and will be able to give mature thought to the discussion or listen to it with the greatest profit. Extemporaneous speech is for many people not difficult, but most groan mightily when the cross of extemporaneous thinking is placed

upon their shoulders; even extemporaneous speech sometimes proves the truth that hasty births bring forth blind whelps.

Such a plan would do away with an evil which has been repeatedly criticised—the undue attention given to diseases of women, chiefly the surgical diseases. I find one volume of our Transactions which contains considerably more than three hundred pages occupied with diseases of women, and these mainly surgical, and but little more than one hundred given to midwifery. In the volumes of the Transactions of the London Obstetrical Society and of the Edinburgh there is usually a decidedly greater space given to midwifery.

In one of the two addresses by Dr. Barker he remarked: "I think I have said enough to show clearly that medical gynecology bears as important part in the work of this Society as uterine surgery." Dr. Taber Johnson said in 1879: "The tendency is to the newer field of gynecology, to the neglect of the more important department of midwifery." Dr. Skene, in his presidential address, stated: "From the time that this Society was organized until to-day the greater portion of its time has been devoted to surgery; this is neither necessary nor best."

Time has not abated in the least the force of these criticisms. I believe it would be wise to adopt the plan suggested, and there would be no occasion for the repetition of such censures. Moreover, our meetings would have increased interest and usefulness. A scattering fire makes no breach in the walls of an invested city or in the ranks of an opposing army. Combination and concentration of forces are the secret of victory.

Seventeen volumes, containing somewhat less than eight thousand pages of reading matter, testify to the active work of this Society. It is true that some of the papers were only of historical interest when presented, while others have, in the progress of our art, become so. Thus, who cares now to study gastro-elytrotomy, or the electric treatment of ovarian tumors? Possibly, too, some of the papers should have been published elsewhere, and it may be—thus I confess my own shortcoming—that the perineum has been protected without the production of any revenue. Nevertheless there remains a great body of scientific truth and of practical instruction, an invaluable collection for all engaged in the study of obstetrics and diseases of women.

The question as to how and by whom obstetrics and diseases

of women should be taught is one that may well engage the consideration of this Society. That didactic instruction in these branches is, as a rule, well given in our various medical schools, will be conceded; but it is feared that practical instruction is also, as a rule, far below the needs of the student. To be one of a hundred or of several hundred witnessing operations adds very little knowledge to the witness. The true ideal of instruction can only be realized in a large hospital devoted to obstetrics and diseases of women, students being taught in small number at a time. Only thus can these students acquire reasonable expertness in diagnosis, and only thus can they satisfactorily and instructively witness the methods of treatment, whether surgical or medical.

But, passing by this point, the question as to the teacher is to be considered. It is well known that only recently in the chief medical schools of London has it been permitted the teacher of obstetrics and diseases of women to perform an abdominal section—this being held the right of the hospital surgeon. In France the surgeons have generally been the operators. The subject was discussed by Dr. Smyly, of the Rotunda Hospital, Dublin, before the British Medical Association in 1891, and in his address he stated: "Midwifery and gynecology must go together; they are sciences which God has joined together, and should never be put asunder." And again he states that it is impossible to draw the line between them.¹

Auvard asserts that "the necessary fusion of the two scien-

¹ "Let us now endeavor to define this line. A woman presents herself for examination. The first duty of the examiner is to determine the presence or absence of pregnancy—that is obstetrical; but if she happen to be sterile in consequence of endometritis, she should, of course, be treated by a gynecologist. Under his judicious treatment she so far improves as to become pregnant; provided the pregnancy be uterine, her case is obstetrical, otherwise gynecological. Even if the ovum is situated in the uterus her position is still uncertain; for if the conjugate diameter of her pelvic brim be two and a half inches or less she should go to the gynecologist, otherwise to the obstetrician. Her pregnancy probably ends in abortion, which does not improve the endometritis, and she acquires the habit of aborting, and again requires the gynecologist. Becoming pregnant again, she goes to term, but has placenta previa. If this be partial, the obstetrician is in place; but if complete, abdominal section is, according to Mr. Tait, advisable, and so a specialist in this department is called in; but after delivery by the obstetrician she may be attacked by septic peritonitis, when, according to Dr. Savage, the gynecologist is again required. Should her perineum be ruptured the obstetrician may at once sew it up, but if primary union was not obtained she is once more handed

tific branches, which make but one specialty, is quite manifest, and no evil results from this union. An accoucheur ought to be a gynecologist, and a gynecologist an accoucheur: if the physician is only one or the other he is only an incomplete savant, a scientific monorehrid."

In an elaborate recent paper upon the "Teaching of Gynecology in France," by Doléris, this distinguished and able Honorary Fellow of our Society takes the ground that obstetrics and diseases of women should be taught by obstetricians: "One is not a gynecologist if he has not begun by being an obstetrician." "The great majority of the affections treated by the gynecologist have their origin in puerperality, in the traumatism accompanying delivery, and in infection in the lying-in." "This natural connection between gynecology and its mother branch, obstetrics, appears to give a solution of the question the most logical, the most easily realized, the most favorable for the development of the science, and conforms to the results of the experience of our neighbors." "In Germany, in Austria, in Italy, everywhere as hospital service, as both theoretical and clinical teaching, it is entrusted to obstetricians."

Believing this one of the most important questions in the future of medical teaching in our country, it was my purpose to devote my address chiefly to its discussion. I wrote, some months ago, to my friend Prof. Winckel, asking the reasons for the practice, universally prevalent in Germany, of uniting obstetrics and diseases of women under one teacher: but his reply was only received two days ago, and is so complete and elaborate a consideration of the subject that attempt at successful condensation is impossible, and simply introducing extracts would be unsatisfactory and do injustice to the distinguished author. Therefore, with the permission of the Society, it will be added as a supplement to my address, knowing that all the Fellows will be glad to have it in complete form. Partly in anticipation of this act, my address will be briefer than such performances usually are, and its deficiencies will be more than compensated by the paper of Dr. Winckel.

Shall I repeat the protest so often here made, especially by Dr. Jackson, against unnecessary operations, particularly the re-
over to the gynecologist. But such a course would not only be absurd and contrary to the dictates of common sense: it would frequently be fraught with danger."

removal of the uterine appendages, unless to remedy diseases otherwise incurable and intolerable? But "what so tedious as a thrice-told tale?" I have sometimes wished that, in the multiplicity of papers describing important operations and their great success, there might be an occasional one, not upon how to do, but upon how not to do it. There is a glamour about successful surgery—a flashing of swift fame, a glitter of gold and a promise of financial felicity, as well as the conscious pride of success and of instant relief—that may mislead, operations being done that might have been averted by judicious hygiene, and patient, wise medical treatment. It is useless to deny that unnecessary operations, sometimes sexual mutilations, are done, and that many women are saved from them by changing their professional adviser. Some are so blinded by their successful surgery that they are unwilling to admit that they have ever committed such a fault, and have no patience with those who suggest its possibility. Human judgment is fallible, and liability to error belongs to all.

Preventive medicine is the battle-cry of the day. Prophylaxis by means of asepsis and of antisepsis has won a noble triumph in almost completely banishing puerperal infection from great maternities. Time was when such institutions were sometimes literally decimated by the terrible scourge; but now in two maternities, one in this city and the other in Lille, there have been two thousand cases of labor without a maternal death. If the same care can be had in all cases of labor and of miscarriage, one important source of pelvic suppurations, usually requiring an important operation, will cease.

Here let me make two digressions, historical in character, the one relating to pyosalpinx, the other to the prevention of puerperal fever. More than fifty years ago the most brilliant lecturer on obstetrics that our country has ever had, the late Dr. Charles D. Meigs, described a fatal case of general peritonitis occurring in childbed, caused by the rupture of a purulent collection in one of the tubes; this fact seems to have escaped the observation of those who have done abdominal section for puerperal pyosalpinx.

This is the semi-centennial of the publication of a paper on the contagiousness of puerperal fever, the thesis that such disease was communicable by doctor or nurse being established beyond successful dispute, and also prophylactic rules, anticipating

part of the important teaching of Semmelweiss, laid down. The author thereby did more, I honestly believe, than any American obstetrician, living or dead, to save the lives of puerperal women and their new-born children. Later in the evening you will learn what means have been taken to pay some slight honor to the name and the deed of Oliver Wendell Holmes.

Returning from these digressions, if so much has been done and can be done to guard against infection in childbirth and in miscarriage—an infection which may result in pelvic suppuration—why may not other causes of suppurative salpingitis, especially gonorrhea, be obviated by suitable prophylaxis? Those grave operations, whether that commonly known as Tait's, or that of Péan, or any other, such as perineotomy, are usually a confession of the indolence, the ignorance, or the impotence of medicine. Yet the disease which culminated in suppurative salpingitis, generally was in its beginning accessible and amenable to local treatment which would have prevented its extension.

I would not disparage the brilliant results obtained by abdominal section in pelvic suppurations, and I recognize among American operators many as able and as successful as any in the world; at the same time I would gladly see their work much more limited, as I believe it can be when medicine asserts its prophylactic and curative power, as it surely will in the progress of our knowledge.

But behind this protection a strong bulwark should be erected, and here I refer to the morality question. As physicians and philanthropists, our duty to care especially for the health of women and to protect them from disease, and knowing countless cases of wives made sterile, their health more or less seriously impaired, by the licentiousness of husbands who regard the seventh commandment as obsolete, we cannot ignore what has been called the social evil. If we content ourselves, as so many do, with declaring it a necessary evil, and utter no warning, make no effort to arrest the black tide of disease and death, of sorrow and suffering and crime, we do not meet the grave responsibility of the hour. An eagle stole meat from the altar of the gods, but took with it a coal of fire that utterly consumed her nest and her young. We who are priests at the altar of woman's health are derelict in duty if we do not throw around it all possible protection.

What if the immortal Jenner had said, Small-pox is a neces-

sary evil, and therefore I will do nothing to avert or to mitigate the scourge? So, in the presence of a great moral and physical evil, let us beware of saying nothing can be done to avert or mitigate. My own belief is that if fathers were as careful to inculcate lessons of chastity upon their sons as mothers upon their daughters; if that double standard of sexual morality which prevails in society, regarding the licentiousness of the young man as venial, while it brands his sister who lapses from virtue as an outcast, never to be forgiven, were forever abolished; if the true horrors, loathsomeness, and perils of prostitution were made known in a proper manner to young men—if the moral forces of good men and of good women could be combined, guided by the intelligent and zealous devotion of physicians, bearing full high advanced the White Cross, I am sure that a brighter, better day would dawn and a reign of social purity prevail. God speed the day!

Fellow-members, I approach the end of my address. I believe that the future of medicine is bright with promise, and year by year higher attainments will be made, in comparison with which much of the past will sink into insignificance. This Society will do more for woman's health, and thus for her happiness and usefulness, in the next seventeen years than in those that are past—"that which has been but earnest of that which shall be." When that period ends, probably one-third of the present membership will be in the grave. Some of us may, indeed, realize that the evening is coming—the shadows lengthening upon our pathway tell of the setting sun, and the sound of the nearing sea upon which we embark is borne to the attentive ear. Only, whether our remaining years are few or many, may each be able to say with Epictetus: "I am always content with what happens, for I think what God chooses is better than what I choose." Only, too, let it be remembered, those who depart have an interest in what is accomplished by them who abide little longer.

"It may not be our lot to wield
The sickle in the ripened field,
Nor ours to hear, on summer eves,
The reapers' song among the sheaves.

"Yet where our duty's task is wrought
In unison with God's great thought,
The near and future blend in one,
And whatsoe'er is willed is done!"

THE NECESSITY OF THE UNION OF OBSTETRICS AND GYNECOLOGY
AS BRANCHES OF MEDICAL INSTRUCTION.

BY F. WINCKEL, OF MUNICH.

In all German universities the teacher of obstetrics is also the teacher of gynecology, and the clinic under his direction contains a department for the care of women in the puerperal state, and another department for women suffering with diseases of the sexual organs. Such an arrangement seems so natural that it scarcely requires discussion; but, although this union has been established in many European countries, in three of the most powerful nations—namely, England, France, and North America—gynecology is wholly or largely practised by surgeons, who have stubbornly refused to yield their ground. Only recently the distinguished professor of obstetrics in Jefferson Medical College of Philadelphia, Dr. Parvin, requested my opinion in this connection, as he desired to present the subject for discussion at the meeting of an American medical organization.¹ It will therefore not appear trivial if, in opening my gynecologic clinic, I shall attempt to give a brief exposition of the subject, touching upon the questions of the manner in which the union of obstetrics and gynecology has taken place, giving a condensed historic review; then consider why this union had to come about, or, in other words, point out the indissoluble relations between the two departments; and, finally, why in England, France, and North America this union has not been maintained, but which must in the not too remote future be established.

If you will consult the oldest preserved records of medicine, you will find that what was known of obstetrics and gynecology was included in chapters devoted to the consideration of other subjects; but the department of the diseases of women received more especial attention, and had reached a higher degree of perfection (as indicated by Hippocrates' "*De Morbis Muliebribus*"),² at a time when the methods of resuscitating a dead

¹ The request reads as follows: "I should like to have your opinions and reasons in relation to the union of the chairs of obstetrics and diseases of women in medical schools. In America, as you know, it is common to have these subjects taught by two chairs, while in Germany the wiser method is followed of uniting them under one teacher. If I can get the needed information from you and one or two other teachers in Germany, I mean to discuss the matter in my address before the American Gynecological Society, of which I have the honor of being President" (December 23d, 1892). In a second letter, dated April 4th, 1893, he again asks me to give the desired information, to be utilized in the President's address to the American Gynecological Society.

² Cf. Hippocratis Opera, ed. Jan. Cornuarius, Basel, 1546: chapters de

child (for this was the task of the obstetricians of the day, who were only called after the wise women had exhausted their wisdom) were becoming known. In the six books of Celsus, also, in which obstetric knowledge had reached a stage of much greater completeness, and in which, for instance, podalic version is described,¹ there is no conjoint discussion of obstetrics and gynecology: as a matter of fact, the consideration of the diseases of women is even more scattered than in the work of Hippocrates.

The first author who, according to present notions, would be considered a gynecologist was unquestionably Soranus of Ephesus, who lived in the second century of the Christian era. In a work that has largely been preserved he devotes especial consideration to obstetric teachings, as well as to the diseases of women, and throughout there is evidence that already at this time these branches had reached a high degree of perfection. In proof of this assertion it need only be pointed out that he was familiar with the vaginal speculum; that he recognized the differentiation between the vaginal portion and the mouth of the uterus on the one hand, and the vagina on the other hand; that he knew of the employment of pessaries in the treatment of displacements of the uterus; and that he partially or entirely removed the uterus for carcinoma; and that, as he treated of obstetrics in the same work, he considered the association a natural one, and presented the two subjects, not merely side by side, but, somewhat as Carl von Braun² has done in our day, in intimate relation with one another.³ His successors for a long time depended almost solely upon his work. Then came the Arabians; and as their religious customs banished woman to the darkness of the harem, and placed the treatment of the diseases of women and of parturient women beneath the dignity of men,

genitura, 39-43; de septimestri partu, p. 61; de octimestri partu, p. 63; de exsectione foetus, p. 72; de natura muliebri, p. 287; de morbis mulieru, pp. 309-383; de sterilibus.

¹ E.g., liber iv., cap. 20, De vulvæ morbo; liber vii., cap. 4, De fistulis; liber vii., cap. 10, De polypo; liber vii., cap. 28, Si naturalia foeminarum non admittunt concubitus, quomodo curari conveniat possit . . .; liber vii., cap. 29, Qua ratione partus emortuus ex utero excutitur.

² Ed. Martin, Atlas, plates xli., xlii., xlvii.

³ For instance, the superscriptions of the chapters in the second volume of: "Gynæcia" published by Valentin Rose (Leipzig, 1882) read as follows: cap. 1, De retentione menstruarum; cap. 2, De fervore matricis; cap. 3, De satyrismi; cap. 4, De præfocatione matricis; cap. 5, De tensione matricis; cap. 6

they developed nothing new in these departments: they were even unfamiliar with some things, such as podalic version, which had been firmly established at the time of their ascendancy, and thus permitted them to be forgotten.

With the invention of the printing press the reign of the Arabians in the department of medicine was brought to an end, particularly by Janus Cornuarius, through whose admirable translations of the old Greek authors and through whose lectures and disputations the relative positions of Greek and Arabian medicine were placed in a proper light. Soon after this numerous authors (*e.g.*, Wolff, 1566, and Spach, 1597) began to publish so-called "*Gynæciæ*" ("*Compendia of Gynecology*" they might be called);¹ they also published in one volume the most noteworthy works of the Greeks, the Romans, and the Arabians, as well as the related works of Hippocrates, Galen, Soranus, Moschion, Cleopatra, Rocheus, Trotula, Albukasem, and Avicenna, in so far as they treated of obstetric and gynecologic subjects. These authors were not, like Soranus, pure gynecologists, and it is for this reason that the undertaking is especially noteworthy, because it indicates that already at this early period, in the sixteenth century, the two branches, obstetrics and gynecology, were considered as most intimately and inseparably related. Perhaps the circumstance that obstetrics, like surgery, was considered to occupy a lower plane in medicine, and the further fact that one of the most significant advances in obstetrics (the revival of version) was due to the great French surgeon, Ambroise Paré (1510-1590), contributed to the result that for several hundred years obstetrics was under the control of surgery. It was not before the beginning of the eighteenth century² that the first chair of obstetrics was established, and, though upon French soil, in the old German city of Strassburg. This was followed by the establishment of similar chairs in Göttingen (1751), in Vienna (1754), in Marburg (1792), and in Berlin. Although by the establishment of these chairs, in conjunction with which obstetric clinics were organized, the complete separation of obstetrics from surgery was begun, the operative division of

De inflatione matricis; cap. 7, De tumore matricis; cap. 8, De duritia matricis; cap. 16, De sterilitate; cap. 17, De difficile et laborioso partu, etc.

¹The title reads: "*Gynæciorum hac est de mulierum tum aliis, tum gravidarum, parientium et puerperarum affectibus et morbis. Libri veterum ac recentiorum.* Basel, 1566, Casp."

²Early in the twenties (1725?). Cf. Siebold, *gebh. Briefe*, p. 129.

the yet small department of gynecology remained in the hands of the surgeon. Nevertheless it is a noteworthy fact, which has certainly contributed to the reunion of the two departments, that the first periodic journal,¹ founded by Stark at Jena, dealt not only with obstetrics, but also with the diseases of women, and all that followed—namely, the *Lucina* of Siebold, then the *Gemeinsame deutsche Zeitschrift*, the *Neue Zeitschrift*, the *Monatsschrift*, up to the *Archiv für Gynäkologie*, which first appeared in 1870—embraced both departments. It was not, however, until the middle of the nineteenth century—and my studies were pursued (1856–1860) toward the close of this period—that the teachers of gynecology were only the teachers of obstetrics; that they lectured only upon theoretic obstetrics; and that, in addition to demonstrations of labor in parturient women, they gave instruction in digital touch and operative courses upon the manikin. This was the condition of affairs in the year 1857 in Berlin and in most German universities. In the first decades of the nineteenth century numerous teachers of obstetrics had treated of gynecologic subjects in monographs. I need mention only the text books of Carus, Joerg, Mende, Busch. In addition, the distinguished Edinburgh gynecologist, Sir James Simpson, had delivered a course of lectures upon the diseases of women, which were recorded by some of his pupils and reprinted in Philadelphia. The obstetricians, however, had no clinical material with which to teach the diseases of women. Several small universities, such as those of Jena and Rostock, made exceptions to this rule, because, on account of the limitations imposed by lack of obstetric material and the special tendencies of the professors (Stark, E. Martin, G. Veit), gynecology was included in the course of instruction. A distinct advance was made in 1842² by Kiwisch, of Prague, upon whose request a department in the General Hospital for the treatment of the sexual diseases of women was transferred to his care. Soon after this a similar arrangement was made at Vienna, and by E. Martin in Berlin in 1857; and the last stone in the completion of the structure of general gynecology was furnished by the reception into the same clinic of gravid women and women suffering with diseases of the sexual organs, and who were placed for treatment in part in the wards previously used for the delivery of parturient women, and in part in new buildings.

¹ The first volume appeared in 1787 at Jena.

² "Biographisches Lexicon von Gurlt und Hirsch," iii., p. 484.

constructed for the purpose.¹ "The new buildings were constructed in part upon the pavilion plan, permitting a separation of the gynecologic and puerperal cases (in Berlin and in Erlangen); in part they were constructed of several stories, for the ready classification of the cases (in Königsberg, in Breslau, in Halle, in Bonn, in Würzburg, in Munich, and in Heidelberg). In all instances, however, but one director was appointed for each clinic, and at no time has objection been raised to this union,² either by the Academic Senate or by the Government; and various Landtags, by liberal appropriations for the purposes of these clinics, have given sanction to their work. As this process has for half a century been growing more complete and more general, it must have proved itself worthy, for during all of these years no complaint has been made and no objection raised.

Why was this result unavoidable—in other words, what are the connections that inseparably unite obstetrics and gynecology? To this question it is answered that both have to do with the same organs of the human organism, and that these organs (unlike muscles and nerves, kidneys, pancreas, spleen, and liver, separated from one another and having individual functions), in addition to having a common vascular and nervous supply, are intimately related and supplement one another in physiologic function, so that under pathologic conditions a bond of sympathy at once exists. One need but think of the similar changes that take place during menstruation, gravidity, and parturition, and of the influence that displacement of the uterus exerts upon the vagina, tubes, ovaries, etc. It thus results that obstetrics and gynecology have to do only with varying conditions of the same organs, partly physiologic, partly pathologic, so that the two departments are thus practically inseparable; because, for example, all abnormalities of the female sexual organs, excepting only those defects of development that render conception altogether impossible, may prove a source of difficulty in parturition, and so require treatment at the hands of the obstetrician. One has but to think of the complications of pregnancy and labor by ovarian tumors, by uterine myomata, and by carcinoma of the uterus—conditions that cannot always be recognized weeks or months before labor, but which

¹ Cf. Fritsch, "In die deutschen Universitäten," Acher u. Co., 1893, vi., Gynäkologie.

² Cf. Fritsch, *l. c.*, p. 285.

are often discovered only at the time of labor and demand immediate, energetic operative intervention. How could an obstetrician not perfectly familiar with, and thoroughly able to carry out, celiotomy, hysterectomy, the Porro operation, myomectomy, etc., properly perform his duty? Should the obstetrician be not thus qualified, he must call in the surgeon to act as accoucheur; so that if he be no gynecologist he should also be no obstetrician; and if in his capacity as a physician he must practise both obstetrics and gynecology, it would be simply ridiculous did not the same teacher give instruction in both branches. Conversely, nearly all of the diseases of the female sexual organs may result directly from puerperal conditions, and it is one of the most important duties of the obstetrician to prevent such consequences, or, in the event of their occurrence, to treat them in their incipency, during pregnancy, labor, and the puerperium. The conditions encountered are not only such as require surgical measures—one need but think of the large number of nutritive disturbances of the sexual tract in puerperal women; besides, it has long been well known, as B. S. Schultze has demonstrated, that old retroflexions can never be better cured—that is, more rapidly and with greater certainty of permanence—than by the institution, during the first days of the puerperium, of systematic tonic and instrumental treatment. Is the obstetrician to say, “This is not my affair, I must call in a surgeon”? or shall he undertake the treatment of those retroflexions that are remediable by the application of pessaries, and turn over to the surgeon those chronic displacements dependent upon adhesions of the uterus to adjacent structures, because mayhap it should become necessary to perform a ventrofixation of the uterus? This arrangement would, no doubt, be entirely agreeable to some surgeons, but the condition would be a most deplorable one. For both patient and physician it would, under these circumstances, not be long before obstetrics and gynecology would be still further subdivided; so that in the course of time there would be exclusive vulval doctors, vaginal doctors, uterine doctors, tubal doctors, and ovarian doctors. Further, if, as a result of peritonitis from perforation or septice-mia, a puerpera should be brought to the edge of the grave, should the obstetrician, waiting for the knife of the surgeon, permit the time most favorable for the successful performance of celiotomy to escape and the life of the woman thus to be

sacrificed? If such a condition of affairs were permitted to exist we would be placed in the position in which it is said that English medicine stands, as illustrated by the story of the practitioner of internal medicine who was unable to render any assistance to an apoplectic near whom he happened to be standing when the attack occurred, because the physician was not permitted and did not know how to perform venesection. There can be no question that one who, as a competent physician, undertakes the treatment of any condition, should feel capable of the management of all of its phases, so that it shall not be necessary at a critical moment to call in more skilled assistance.

Without doubt progress in obstetrics goes hand-in-hand with progress in gynecology; the one advances the other. A survey to determine which have contributed most largely to the development of gynecology, surgeons or obstetricians, will, without belittling the work done by such men as Paré, Jobert de Lamballe, Gustav Simon, Czerny, and Billroth, show that the work of such men as Kiwisch, Simpson, Schröder, Spiegelberg, and other living gynecologists is not of less importance. Further, the recognition of this fact is manifested by two such distinguished surgeons as Billroth and Lücke, who in their great "Handbook of Surgery" devote a special section to the diseases of women, for the preparation of which they personally selected only pure gynecologists, namely, Chrobak, Fritsch, Gusserow, Breisky, Hildebrandt, Olshausen, Bändl, Winekel, and Zweifel. Billroth himself wrote the chapter on the diseases of the female breast. Finally, how much disease among women has been prevented as a result of the acceptance of the doctrine of Semmelweis concerning puerperal infection? Has not the principle of antisepsis, or rather asepsis, to which this doctrine led, though only after the later investigations of Pasteur and Lister, formed the basis of modern surgery and gynecology?

To go a little more fully into detail, let us ask who it was after McDowell in 1809, and later Spencer Wells and Keith and Stilling, had made ovariectomy a justifiable and successful operation, that perfected the operation? Were they not German gynecologists that did this, at whose front stands Karl Schröder? Further, who has rendered popular the performance of myomectomy, of castration for myomata, of enucleation of fibroids, if not Hegar, Kaltenbach, Leopold, Chrobak, A. Martin—all pure gynecologists? Who was it that took up again the

operation of extirpation of the carcinomatous uterus, after it had lain in neglect for almost seventy years—who but the gynecologist, W. A. Freund, in the year 1878? And after Czerny, in 1879, reintroduced the operation of total extirpation of the uterus per vaginam, the operation was soon modified, extended, and improved, and given a permanent place, by Olshausen, Peter Müller, H. Fritsch, Winckel, Hochenegg, and Herzfelder—all gynecologists but one. Finally, coming now to German universities, who performs the largest number of celiotomies, undertaken for the removal of the ovaries by such surgeons as Bernhard von Langenbeck, Neponuck von Nussbaum, Czerny, according to the method of the English surgeons, Ch. Clay, Sir Spencer Wells, Keith? Everywhere in Germany it is the pure gynecologist who performs to-day all celiotomies for the treatment of the sexual diseases of women, and who has the largest experience in this department of surgery. Not only surgical gynecology but also operative gynecology has attained a high degree of perfection, and especially through the classic work of Hegar and Kaltenbach. A long list of excellent monographs—including the description of displacements of the uterus by B. S. Schultze, the works of H. Ruge and J. Veit upon carcinoma of the uterus, the microscopic-anatomic plates of Von Wyder—demonstrate that German gynecology has striven not to be narrow, and not to cut only for the sake of cutting, but to learn from removed structures the seat, nature, and cause of the disease-process that necessitates operative interference. It is yet to be added that German obstetricians and gynecologists have always kept pace with their colleagues in other countries, and partly by literary study, partly by travel and personal contact, have kept abreast of every advance in the departments which they represented. The recognition of the value of their work is indicated by the numerous translations of their publications in various languages, French, English, Swedish, Greek, Russian, Italian, etc. (*e.g.*, the text books of Carl Schröder, O. Spiegelberg, B. S. Schultze). Lastly, the crowning result of all of these endeavors, the most important factor in the intimate union of the branches, was the organization, in the year 1886, of the Congress of German Obstetricians and Gynecologists, the significance of which has, year by year, grown greater, and which constitutes a firm bond of union between the official representatives of general gynecology. Even those who at first

opposed the organization of such a congress have enrolled themselves as members and have actively participated in its work; while the ever-broadening character of the work affords sufficient guarantee that the congresses will continue to be held, and that they will serve to maintain for all time the union between obstetrics and gynecology. In the meantime the medical press has worked in the same direction. In addition to the journals already named, and especially the *Archiv für Gynäkologie* and the *Zeitschrift für Geburtshülfe und Frauenheilkunde*, the collaborators of which are constituted by all of the pure gynecologists of Germany, the *Annual Report in Obstetrics and Gynecology*, published since the year 1889 by Frommel, deserves to be mentioned. It cannot, thus, be considered unreasonable to say that it is scarcely conceivable for a separation of obstetrics and gynecology ever to take place; for the occurrence of such an event would be a decided step backward. Nevertheless it is not difficult to find in the history of medicine instances of facts, methods, and devices, long well known, that have fallen into utter forgetfulness. It is but necessary to refer to the performance of version in labor, a manipulation that for centuries was entirely neglected. Under present conditions, however, it is practically impossible that such a work of destruction as was carried out twelve hundred years ago by the Arabians should be repeated; and even should such an event occur, Germany, with all her culture, would be so influenced by surrounding nations that with the rejuvenation of science and the erection of indestructible monuments, as they now exist, gynecology and obstetrics would arise phoenix-like from the ashes, always with the well-known motto of Schleswig and Holstein: *Ap avig unge-dielt*. Should the process of destruction go so far that the German nation, like the Polish, could never again be restored, the individual States in which gynecology and obstetrics were distinct would, no doubt, take steps to bring about their union.¹

We have now reached our third question, and shall endeavor to show why obstetrics and gynecology are still in different

¹ Their experience would probably be like that of Marion Sims (cf. "Autobiography," Stuttgart, 1885, p. 154), who, in the early part of his professional experience, literally said: If there was anything that was odious to me it was the examination of the female pelvic organs; nevertheless, as he himself says, his success lay in a direction that he would first scarcely have dreamed of (l. c., p. 126). And this is the case not alone with the individual, but also with whole nations.

hands in England, France, and North America. Beginning with the United States, we have to make a grateful tribute to the work of Marion Sims, who did so much for modern gynecology. Scarcely a subsequent writer has done so much to advance gynecology in many directions and in such a striking manner as he. Though he considered himself a surgeon and designated his greatest work "Clinical Lectures upon the Surgery of the Uterus," he was nevertheless a pure gynecologist, for the reason that not only do the various chapters of this work deal with the two questions as to the causes that prevent conception and the means of controlling these causes, but that his whole activity was more and more given up to a study of the pathology of the female sexual organs and that he early (1853) gave up his surgical work. Although, as it appears, he never practised obstetrics, still he deserves the credit for having established in America (in the city of New York) what Kiwisch did in Germany, the first hospital devoted especially to the treatment of the diseases of women.¹ One would have supposed that, with this accomplished, the union of obstetrics and gynecology in one hospital would have been an easy matter; but the conditions surrounding maternities in America are quite peculiar. Those devoted purely to purposes of instruction and which are well attended are extremely rare. To my knowledge New York alone possesses any. All others are either private establishments or departments of general hospitals (for instance, in the Cook County Hospital of Chicago), to which the physicians of the hospitals scarcely have access, and students not at all. This state of affairs is partially due to the fact that the working portion of the population in the United States is peculiarly better situated than the same class in Germany, and in consequence utilizes the maternities much more rarely. Besides, in consequence of the liberal means furnished such institutions from private sources, the poorest is provided with free and unrestrained care and attention. Finally, it may be that, from excessive prudery on the part of American women as to their social position, the men do not sufficiently and properly emphasize the necessity for the establishment of maternities for educational purposes. Extensive obstetric polyclinics naturally only partially make good the deficiency. It is, however, but a

¹ The history of this project, with its numerous disappointments, furnishes an interesting chapter of a most interesting autobiography (l. c., pp. 176-205).

matter of time before these obstacles will also be overcome in America—a culmination that I hope to witness. Promise of this is furnished by the fact that, for instance, a home for women has been established in Canada (in Montreal) for the reception of both poor pregnant women and poor women suffering with diseases of the sexual organs. Further assurance is given by the ever-increasing number of American societies that devote themselves to obstetrics and gynecology; by the journals devoted to the same subjects, especially *THE AMERICAN JOURNAL OF OBSTETRICS*, formerly edited by P. F. Mundé; the annual proceedings of obstetric and gynecologic societies in New York, Boston, Buffalo, etc.; the work of the Association of American Obstetricians and Gynecologists, founded in the year 1888, and whose proceedings fill four handsome volumes.¹ A beginning has been made, in so far as Prof. Parvin, the occupant of the chair of obstetrics in Jefferson Medical College of Philadelphia, has for several years given instruction in gynecology by means of the phantom introduced by me for teaching purposes. Finally, I am encouraged, by his expressed intention to discuss this question before a large and important medical body, to hope that his energy, persuasiveness, and persistence may succeed in carrying the good work to a successful termination.

In England the conditions appertaining to obstetric material are similar to, but not identical with, those present in America. There, too, there are few large maternities devoted to educational purposes; most are small;² some are private institutions.³ English obstetrics has no midwives, but nurses instead. The obstetrician spends as much time with the parturient woman as the German midwife—a fact that affords explanation why busy obstetricians scarcely have sufficient time to devote to the treatment of the diseases of women; so that operative gynecology is practised almost exclusively by surgeons. It is true that in the early part of the nineteenth century Charles Clay (1820–24), a pupil of Simpson at Edinburgh, was for a considerable period of time teacher and medical officer of the Women's Hospital at Manchester. He published not only papers upon the vomiting of pregnancy, Cesarean section, and obstetric operations, but

¹ Vol. iv., Philadelphia, Dornan, 1892.

² Cf. Arneth, "Geburtshülfe, Gynäkol., etc.," Vienna, 1853, pp. 162–179.

³ The cost, to the State, of all of the maternities of England in the year 1849 was not quite 200,000 marks (95,385 gulden).

also his experiences and the results of three hundred and fourteen ovariectomies. There was thus one gynecologist, in the widest sense of the word, upon English soil, though from an Edinburgh school. After him came a surgeon, Sir Spencer Wells, who made a triumph of the operation of ovariectomy at a time when Germans would scarcely longer venture upon it and it was condemned by Seanzoni. There is, however, a tendency in England to day to the establishment of more intimate relations between obstetrics and gynecology, and, as it appears, with some assurance of success; otherwise Sir Spencer Wells would not, in a recent publication, have complained that obstetricians have started upon a race for the attainment of subordinate specialties; that they were engaged in the invention of names of Grecian origin and adopted the special designation of gynecologists; that there was danger in the organization of special associations of gynecologists.¹ Coming from such a man as Sir Spencer Wells, who has done so much good work in gynecology, but is unwilling to relinquish the title of Royal Surgeon of Great Britain, such complaints are excusable. Nevertheless one would suppose that surgeons would have a sufficiently large field of activity without practising gynecology. The formation of a special Gynecological Society in England seven years ago, which carries out its work side by side with the ancient and famous London Obstetrical Society, will no doubt gradually lead to the establishment of close relations between the two departments, after the German method, and as has already happened in Scotland. In this connection it must not, however, be overlooked that in England, as in America, the medical clinics conducted by different faculties are not State institutions, but often private, and are not always as liberally supported as one would be led to expect from a knowledge of the wealth of the English people. This fact also affords explanation for the circumstance that, according to individual inclination, maternities and hospitals for the treatment of the sexual diseases of women are maintained separately, from private resources; and England has long been famous for the large number of hospitals and private institutions for the treatment of special conditions, such as inebriety, carcinoma, tuberculosis, ovariectomy, laryngeal diseases, etc. This tendency, whenever possible, to erect distinct buildings for every disease, and for every condition that may lead to disease, consti-

¹ Volkmann's klinische Vorträge, N. F., No. 32, 1891, pp. 269-272.

tutes an obstacle to the union of tocology and gynecology that must not be underestimated, but which, no doubt, the energy of the general gynecologists will be able to overcome. For, as has already been pointed out, these have, in the interests of education, demonstrated that obstetrics constitutes the portal to the temple of gynecology, into which none may enter who has not a thorough acquaintance with obstetrics, and also that no obstetrician can occupy a prominent place as a teacher who is not at the same time a competent gynecologist.

Finally, coming to France, we find that the conditions surrounding obstetrics resemble, though they are not identical with, those that prevail in North America and in England. There is scarcely another country that in the last two centuries has, with public means, cared for as large an amount of obstetric material as France has done in her *Maternité*. This clinic has, however, been almost inaccessible to physicians, except those in immediate attendance, for since the year 1639 it has been given up to the instruction of midwives, who were thus afforded excellent opportunities to see and to learn much, while the students of medicine, until a few decades ago, received but little practical instruction in obstetrics.¹ This state of affairs explains why, in addition to the medical directors of the *Maternité*, Baudelocque, Portal, Mauriceau, Dionis, Pen, Saviard, Paul Dubois, it was the chief midwives—Madame Boivin (1775-97) and Madame Lachapelle (1797-1821)—who principally distinguished themselves as obstetric writers. Madame Boivin probably had an extensive gynecologic practice, for the women preferred to be treated by their midwives. She wrote a text book on obstetrics and a treatise on the diseases of the uterus, which was published by her nephew, Duges, and the merit of which is conceded even to-day, and to which she appended an atlas that contains numerous good illustrations.²

Until quite recent times gynecology in France was in the hands of the surgeons, and Péan especially earned much credit by his results in the performance of myomectomy before this operation was at all extensively practised in Germany. Since, however, the principles of Listerism have found greater and greater application in France: since a number of German

¹ As in England. Cf. Arneth, *loc. cit.*, p. 179.

² Compare Ed. Martin, "Hand-Atlas," 2d ed., plate xxxi., Fig. 1a; plate xxxii., Fig. 3; plate xlv., Figs. 1 and 4, etc.

works upon operative gynecology (*e.g.*, that of C. Schröder, that of Hegar and Kaltenbach) have been translated into French, and French teachers of obstetrics, such as Paul Bar, Budin, Ribemont, Tarnier, have made themselves familiar with the conditions that exist in Germany, and have been convinced of the stability and permanency of those conditions—since then has the agitation been begun for the union of obstetrics and gynecology, not only in chairs of instruction, but also clinically; and one of my brightest pupils, the publisher of the *Archives de Tocologie et de Gynecologie*, Dr. Auvard, who discusses in his journal both obstetrics and gynecology in its broadest scope, has, in addition to a number of notable books upon tocology, written a series of works upon the diseases of women for students and physicians, which, together with the work of numerous German private tutors, demonstrate that the union of the two departments is also practical among the junior instructors to a degree that will satisfy the most stringent requirements. We may thus safely anticipate the further cultivation of gynecology by obstetricians, and do not doubt that, as an obstetric-gynecologic society already exists in Paris,¹ the two branches will soon be taught in France by the same teacher. If this has not already been attained, it must be remembered that modern gynecology is but of recent birth, dating back but thirty years, and that the decidedly surgical tendency that the art manifested from the outset has been little calculated to stimulate a union with obstetrics in those countries in which the surgeons were also gynecologists.

In conclusion I shall enumerate some of the most distinguished teachers, not Germans, who by precept, by act, by written and by spoken word, have long represented general gynecology. These include A. R. Simpson, of Edinburgh, the nephew of Sir James Simpson; Th. von Pippingskjöld, of Helsingfors; Th. von Krassowski, of St. Petersburg; Prof. Rein, of Kieff; Neugebauer, father and son, of Warsaw; then the whole school of Jungmann, from which Kiwisch, Scanzoni, and Seyfert have emanated. The same conditions prevail in the Vienna school. Throughout Italy, too, the teachers of obstetrics in the universities are likewise operative gynecologists; and one city, Mailand, that has no university, but has large hospitals and, in addition, large maternities, with the most important of which Porro is

¹ Cf. *Archiv de Tocologie*, January, 1892.

connected, has in its hospitals obstetric-gynecologic departments, in which Mangiagalli, formerly professor at Catania, in addition to about one hundred and twenty labors yearly, conducts an exceedingly large operative and otherwise gynecologic service.

It is thus seen that Germany is not alone in her position as to the relations of obstetrics and gynecology; and if the intimate and indissoluble union of these sister departments has not been as early, as speedily, and as generally effected, and with such devotion on the part of the State, in any other country, there are yet a sufficient number of other countries that have accepted Germany's views and the results of her experience, and whose action will exert a favorable influence upon other countries. As, however, not only the academic teacher, but also every educated person to-day, should be on the lookout for good from all sources, and, by travel and personal contact with neighbors at home and strangers in other countries, should endeavor to become familiar with and to put into practical and fruitful application the results of their activity, so, on the other hand, is it his duty to make known the good that he has accomplished and to support others in their battle for the right. Not everything that appears natural to us will be so considered by others; and if we be convinced that German gynecology has made such satisfactory and such rapid progress because the best obstetricians have taken it up early and energetically, we should by our co-efforts, and by the institution of the same process in countries like England, France, and North America, aid in the extension and fruition of these two branches of medicine that would be a boon for general medicine and especially for gynecology.

Quod bonum, felix, faustumque sit et bono publico salutare!

ABDOMINO PELVIC FISTULA AFTER CELIOTOMY AND LAPARATOMY; ITS PREVENTION AND TREATMENT.

BY

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As a rule, when the abdominal cavity has been opened for the removal of an ovarian tumor, a uterine fibroid, or diseased tubes

and ovaries, and the wound has been entirely closed without drainage, union by first intention results and the interior of the abdominal cavity remains an unseen mystery thenceforth.

But in a certain number of cases—far too large, unfortunately, for the comfort of either patient or surgeon—after an apparent perfect union of the abdominal incision, at the time of, just before, or soon after the removal of the sutures, a discharge of pus takes place unexpectedly from some part of the wound, usually a stitch hole, and on examination with the probe more or less undermining of the skin or downward burrowing of pus is found. If the case has been a clean one, where the whole of the diseased mass, whatever it was, was completely removed; if no pus has escaped to infect the wound; if the ligatures and pedicles have been safely dropped and the abdominal incision carefully closed by the usual method of suturing, such a “mural abscess,” as it is called, extends only to the entirely closed peritoneum, does not dip deep down into the pelvic cavity, and is easily healed by splitting open the covering of the fistulous track, packing it with gauze, and, if necessary, stimulating healing by the curette, balsam of Peru, dilute tincture of calendula, etc.

But in a certain number of cases of “celiotomy” (the newly coined word for abdominal section, from *cœlia*, the abdominal cavity) the sinus or fistula is found to extend down into the pelvic cavity, even to the bottom of Douglas’ pouch. The abdominal cavity is, of course, shut off by adhesions, and the sinus does not affect the patient’s recovery, cause pain, or annoy her particularly except by the serous or purulent discharge constantly escaping from it.

The causes of the formation of such deep abdomino-pelvic fistulæ are various. A common cause is undoubtedly the infectious character of the contents of the organs removed, as is the case in adherent pyosalpinx or pus ovary, when the pus sac usually bursts during detachment and the pelvic cavity becomes flooded with pus. No matter how carefully this pus is washed out, some of it undoubtedly escapes removal, and, with the inevitably remaining shreds of adhesion at the bottom of Douglas’ pouch, forms a focus for the formation of an abscess which gradually burrows its way upward between the freshly agglutinated intestines, and discharges usually at the lower angle of the incision, thus explaining the slight elevation of temperature present since the first few days after the operation. Such an

abscess might, of course, force its way in another direction, such as toward the abdominal cavity, and by bursting there cause a rapidly fatal peritonitis; fortunately the dense adhesions usually prevent this disastrous termination. More frequently the pus burrows its way into the bladder or rectum, and occasionally into the vagina.

The use of a drainage tube, in my opinion, decidedly favors the formation of an abdominal fistula, since it causes the production of a canal surrounded by adhesions and leading upward through the abdominal wound, and by its mere presence provokes sero-purulent discharge.

The cutting-through of silk or other imperishable sutures or ligatures likewise tends to promote deep irritation and suppuration in the pelvis, and the reopening sooner or later of a portion of the wound. A probe will pass down five or six inches, and an exploring forceps may find and withdraw the offending suture, whereupon the sinus gradually closes.

Such sinuses following the removal of intraperitoneal growths are usually single, and rarely separate into two or more deep passages among the diffuse adhesions in Douglas' pouch. They are generally directly in the median line, and, if deep enough, the sound or probe can be felt *per vaginam* directly behind or beside the cervix. A few isolated instances are reported where a sponge or artery forceps was dropped into the abdominal cavity and overlooked, and I believe one instance is on record of a piece of sterilized gauze being left there, the presence of neither of these foreign substances being suspected until the abdominal wound reopened, discharged pus, and an examination revealed the foreign body, which was, of course, at once removed.

An abdomino-vaginal fistula is very likely to be formed after removal of the uterus for fibroids by celiotomy, and attachment of the stump of the cervix in the lower angle of the wound. The remaining portion of the cervix usually sloughs out; the fistulous communication with the vagina granulates and contracts down to a mere idea, but it seldom heals spontaneously. This is, to my mind, one of the great objections to this (so-called extraperitoneal or Hegar's) method of treating the stump after abdominal hysterectomy, and I hope to see it superseded ere long by the more scientific and thorough, if somewhat more difficult, method of total extirpation in Trendelenburg's posture.

Other abdominal sinuses are liable to remain after the evacuation, spontaneous or surgical, of abscesses originating in the abdominal and pelvic cavity and pointing through the abdominal wall to the side of the median line, usually close to Poupart's ligament or into the iliac fossa. Such abscesses may be originally intraperitoneal, either localized purulent peritonitis, or pyosalpinx, or pus ovary, and are separated from the intact peritoneal cavity by more or less dense adhesions. Or they may be intraligamentous, cellular, due to inflammation and supuration, usually post partum, of the connective tissue between the broad ligaments and the vagina, rectum, and bladder. Such extraperitoneal, or true pelvic, abscesses may attain great size and burrow their way downward to the perineum and upward into the iliac fossa, and even up to the kidney, dissecting off the peritoneum from its attachment to the pelvic wall, the iliac bone, and the anterior abdominal wall, the pus finally undermining the abdominal muscles and pointing freely over a larger or smaller area of one side of the lower abdominal wall. Usually, however, the pus gropes its way along the pelvic wall, and finally reaches the abdominal skin in the upper portion of the inguinal canal close to the anterior superior spinous process of the ilium. If the abscess was originally intraperitoneal, it is more likely to point further inward toward the median line, so that, when incised, the examining finger finds the peritoneum still attached to the pelvic wall and iliac fossa, the abscess cavity being shut off from the rest of the peritoneal cavity by a wall of firmly adherent intestines. In these latter cases, also, the pus usually does not approach the abdominal wall quite so closely, and the surgeon is obliged to make a deeper incision to reach it than if the pus came up from the pelvic cellular tissue.

If the abscess happens to be on the right side, it is often impossible to decide whether it is due to an appendicitis or a pyosalpinx. I have seen one case, indeed, in which the abscess pointed at the median line between umbilicus and pubes, and where the case was supposed to be one of simple pelvic abscess until the feculent odor of the fluid removed by aspiration showed its true character.

In some instances the abscess, be it intra- or extraperitoneal, may point in another direction than the lower lateral abdominal wall or the inguinal canal. Thus I have seen an intraperitoneal abscess open spontaneously just below the umbilicus, and admit

a probe which could be passed down until its tip was felt through the anterior vaginal wall just below the symphysis pubis; here evidently the pus had made its way through Douglas' pouch into the pelvic cellular tissue. And years ago I saw an old neglected case of what I then thought to be, and still believe to have been, a case of true pelvic abscess, where the pelvic cellular tissue was honeycombed by sinuses which opened into the vagina, rectum, bladder, and the skin of the buttocks over both recto-ischiatic fossæ.

The Prevention of these Fistulæ would at first sight seem a simple matter. One has but to avoid the causes mentioned—that is, use all the well-known antiseptic precautions, remove all diseased and infected tissue, employ only absorbable animal sutures, close the wound completely—and there will be no fistula! At least, so say some prominent celiotomists, one of whom even goes so far as to proclaim that an abdominal fistula after a celiotomy means neglect of some antiseptic detail—that is, practically, unclean surgery. Strange to say, however, such fistulæ still occur in the practice of surgeons whose attention to antiseptics amounts almost to a craze.

Unquestionably, careless surgery may be to blame for the accident under discussion. Further, I do not doubt that a drainage tube, whether it be of glass or hard or soft rubber, or a strip of gauze, by producing firmer adhesions along its track, prevents, to some extent, the contraction of the canal and the persistence of a sinus. And certainly non-absorbable sutures, such as those of silk often prove to be, keep up a focus of irritation at the bottom of the wound, which at last excites suppuration and a burrowing of the pus toward the most available opening, usually the abdominal incision. And until the cause of irritation, the suture, is removed, the discharging sinus exists.

But there are other factors which tend to produce and maintain these fistulæ in the absence of the causes just mentioned.

First, and foremost, is the firm, unyielding character of the walls of the abscess, which contract, to be sure, but only to a certain point, and then show an almost invincible tendency to the formation of soft, friable, pointing granulations, which secrete a thin, serous pus, but manifest no desire to fill up and unite by healthy cell growth.

Secondly, the depth of the sinus, the bottom of which often extends down to the vaginal roof, and even to the anterior vaginal

wall and perineum. No matter how well the sinus is packed and drained, its secretion does not flow up-hill; some discharge is always liable to be retained and thus prevents the canal from closing from the bottom upward.

Thirdly, the anatomical situation of the abscess, with surrounding unyielding bony and muscular walls, prevents the application of peripheral compression, by which even old abscesses and sinuses may be brought to close.

Finally, such patients are usually very much run down by the long preceding illness, and in poor condition for a healthy reparative process. And the longer the sinus continues and the more prolonged the suppuration from it, the more does the general health become depressed, until amyloid disease of the liver, spleen, or kidneys, or general marasmus, terminates life.

The *Prognosis* of these fistulæ is therefore in proportion to their duration and the good or bad general health of the patient. A recent fistula in a woman with fair general health will probably, under proper management, show a rapid favorable disposition to close; whereas an old sinus with hard, dense walls, in an anemic, worn-out subject, will absolutely refuse to start up healthy cell growth, and will persist so long as the patient lasts.

Those cases which still show a tendency to healthy granulation along the whole track of the sinus, and in which through-drainage from the abdominal wall to the vagina can be carried out, present, of the older fistulæ, the best chances for recovery. Nature occasionally cures such cases herself by spontaneous drainage into vagina, rectum (preferably), or bladder. Still, the rectal openings of such abscesses or fistulæ show, for obvious reasons, a decided reluctance to close, at least permanently.

Treatment.—When an abdomino-pelvic sinus has once become established, whether it be after a celiotomy or after the mere cutaneous evacuation of a pelvic abscess, the first object is, of course, to ascertain and remove its cause. Careful probing of the canal should be practised, and, in case of a celiotomy where silk was used, if any hard, irregular substance is discovered in the depth of the wound an attempt may be made with long, slender forceps to grasp and remove it. But it must be remembered that this hard substance may be merely a cicatricial induration, and that force might do injury by tearing the wall of the sinus.

One such accident occurred to me after a celiotomy for abscess of the ovary. A secondary abscess formed among the adhesions at the bottom of the pelvic cavity, and a sinus remained which refused to heal. Suspecting a silk ligature as its cause, I inserted the ordinary uterine dressing forceps into the sinus and groped for a foreign body; while doing so the patient gave a sudden start, elevating her pelvis as she did so, and the points of the forceps slipped into the peritoneal cavity. After satisfying myself by repeated introduction of the forceps of the undoubted occurrence of perforation, I packed the sinus with iodoform gauze and had the patient put to bed. Beyond a slight rise of temperature there was no reaction, and the resulting exudation fortunately helped to close the sinus.

Probing usually causes some bleeding from the vascular, flabby granulations which sprout up chiefly around the external wound, but also deep down in the canal. These granulations are seldom an indication of healthy cell growth; rarely does such a wound close from the bottom up by their means. It is absolutely imperative to scrape away the granulations with the sharp curette, irrigate the canal with a 1:5000 bichloride solution, and pack it lightly with iodoform or plain sterilized gauze, the irrigation and packing being repeated daily, before healthy cicatrization of the sinus will take place. If necessary, balsam of Peru, or tincture of calendula 1:4 of water, may be poured into the sinus every day before repacking it, in order to stimulate healthy granulation.

The stick of nitrate of silver, or a silver probe heated to red heat, passed to the bottom of the sinuss, have often been used by me in these obstinate cases, and I think I can attribute several cases of cure to the use of either method. One case of abdomino-cervico-vaginal fistula after celio-hysterectomy (Hegar's method of abdominal fixation of the pedicle) was cured by the hot probe.

Such treatment is usually exceedingly prolonged; the patients' general health improves, they are about and attending to their duties, and still the sinus remains open.

Besides the causes mentioned for the intractable character of these sinusses, three others may be cited—viz., the too long postponement of the first opening of the abscess, thereby giving the pus a chance to burrow deep down into the pelvis; second, the too long use of a rubber drainage tube, if such a one was

used; and, third, the too tight and too deep packing of the sinus with gauze, whereby granulation and filling up from the bottom are retarded.

Eventually, when the sinus has obstinately refused to close, both patient and physician become impatient and a cure is anxiously demanded. There are two courses open to the surgeon to attain this object, neither of which is sure or entirely safe. The first is to drain through into the vagina, if the sinus is so deep as to allow the tip of the sound to be felt through the vaginal wall. An incision with knife or scissors is made on the tip of the sound, which latter is pushed through into the vagina, a white-rubber perforated drainage tube is tied over the knob of the sound, and both are drawn up and out of the abdominal wound. The drainage tube should be sufficiently long to protrude from the vagina. The abdominal end of the tube is secured from slipping into the sinus by a safety pin. Daily irrigation through the tube with tepid salt water or Thiersch's solution should be carried out until all secretion ceases; then the tube should be drawn down an inch, so as to leave that much of the upper portion of the sinus empty, with a view to its closing. The tube must be retained in place by packing the vagina with iodoform gauze, which need not be changed oftener than once or twice a week. To prevent the tube from slipping too far down or out, I have attached to its upper end a stout piece of catgut, which was kept from slipping into the wound by a safety pin. In a week or ten days the catgut would be absorbed, and by this time the granulations would have closed the upper portion of the sinus, if that happened to be the fortunate result. Every week, or oftener if thought best, the tube would be drawn down an inch or so more, and in this way provision maintained for down drainage without interference with the gradual closure of the upper portion of the sinus. Obviously some weeks, at least, must elapse before a cure is attained by this method, if, indeed, so fortunate a result is achieved at all.

An accident which has recurred to me three times during this treatment is the rupture of the wall of the bladder while drawing the drainage tube from the vagina into the fistula. The bladder in these cases is usually adherent to the wall of the fistula, and the bladder wall is unusually friable. When the sound and drainage tube are drawn through, the edge of the tube is liable to catch in the beginning of the wound, and a little force

has to be used to overcome the obstacle. In three instances, as the tube was drawn through, a gush of urine took place into the vagina. The accident was of little importance, as I merely ordered a soft-rubber catheter to be kept in the bladder, and frequent tepid irrigation of bladder and sinus to be carried out, with the result of a closure of the rent within a few days.

When the sinus has ramified in several directions between the pelvic viscera, it is hardly worth while to try to close the one pointing toward the vagina and leave the others untreated. To drain artificially into the rectum or bladder is bad practice, since the feces and urine would be likely to get into the sinus and still more effectually prevent its closure. Such cases, if Nature does not accomplish a cure against hope, are usually beyond our skill.

The second course open to the surgeon is to enlarge the wound, as much as is safe, down to the bottom of the sinus, and treat it like any other open wound, by irrigation and wet gauze packing, until it heals by granulation.

The danger of this course in pelvic sinuses is the proximity of bladder, rectum, peritoneal cavity, and the large vessels, any of which may be wounded during the operation. While I have never cut into the bladder, rectum, or large vessels, I have several times unintentionally torn the adhesions which closed the peritoneal cavity, and have thus done the operation of "celiotomy" against my will. As there was no benefit to be expected from opening the peritoneal cavity, and only an additional danger to the patient, I have always made haste to close the rent by sutures and pack the wound with iodoform gauze. An unfortunate case is still under observation (I cannot say treatment, as that is of no avail) where five years ago I twice opened the abdominal cavity for ascites, caused by a large papilloma of uterus and ovaries which was so firmly adherent to the pelvic wall that I was unable to remove the mass. After the second operation the ascites, however, disappeared and did not return, and for five years the patient was entirely well. Last fall, however, she presented herself to me at the Polyclinic for a fistula which had broken out in the lower angle of the wound some weeks previously. A probe entered to the bottom of the pelvic cavity and could be freely moved about in the sinus. I admitted her to Mount Sinai Hospital, and freely

enlarged the opening, with the result of finding the papilloma completely broken down. While removing the partly loose masses of the growth with my hand, I suddenly noticed a coil of intestine at the upper angle of the wound, and found that the adhesions which had closed the pelvic cavity off from the abdominal cavity after the last operation had torn. The small intestine was closely adherent to this partition. I at once proceeded to close the rent by sutures, when, to my astonishment, I noticed thin fecal matter oozing out of the nearest adherent coil of gut, and found a rent there, fully two inches long, which had undoubtedly been made by traction while I was tying the suture to close the abdominal cavity. I carefully sewed the intestinal rent with Lembert's suture, packed the tumor cavity with iodoform gauze, and closed the abdominal cavity entirely. The patient did perfectly well for two weeks, had natural movements, and I congratulated myself on the successful enterorrhaphy, when suddenly a fecal discharge took place from the wound, and what has proved to be an inoperable fecal fistula was found. The peculiar attachment of the intestine to the sac wall renders a secondary enterorrhaphy almost impracticable. Besides, the pelvic sinus still persists and is apparently also incurable. The patient may live for a long time, but nothing can be done to cure her.

If the enlargement of the sinus, etc., fails, we still have left a true celiotomy, and an attempt to solve the source of the persistent discharge from the sinus by intraperitoneal exploration. It is possible that a diseased tube or ovary, or deep-seated pus pocket among adhesions at the bottom of Douglas' pouch after removal of the appendages, may be the source of the discharge. This would apply, of course, chiefly to cases where the operation originally was intraperitoneal for the removal of diseased appendages. So far as I can see, where the abdominal cavity is shut off entirely by adhesions from the sinus and its source, whatever and wherever that may be, there is no use in opening the peritoneal cavity. One exception should, however, be made to this statement, and that is where the celiotomy is done for the sole purpose of locating with the fingers in the peritoneal cavity and bimanually the exact site of the pocket from which the sinus starts, after which the peritoneal wound is closed and the operation performed extraperitoneally. This is the way in which some deep-seated extraperitoneal pelvic

abscesses can be located, as also the presence and exact site of the inflammatory exudate or suppuration in appendicitis.

Celiotomy will usually be resorted to as a last expedient in these cases. My friend Dr. Gerster made use of it recently in a case which had been in my service at Mount Sinai Hospital, several years ago, for a pelvic abscess which pointed in the right iliac fossa and was opened by the house surgeon during my summer vacation. The wound was treated in the usual manner, but a fistula remained, which was freely opened three or four times, with the invariable result that when the wound contracted the same old sinus returned. At times the patient had rises of temperature, and finally pus appeared in the urine and was also discharged per rectum. An obstinate cystitis required months of irrigation before it gradually improved. The opening into the bladder had closed by that time, but that into the rectum remained open, as well as the abdominal fistula. I could see no use in cutting at random into the pelvic cavity, with the view to instituting through-drainage into the rectum, even if I considered such a drainage advisable. No communication could be established by a probe or the injection of fluids between the cutaneous wound and the rectal opening. A celiotomy also did not offer to me any practical hope of curing the sinus, since it seemed to be now extraperitoneal, whatever it might originally have been. The patient's general health had improved greatly by this time, and I advised her to let well enough alone and enjoy life as best she might with her sinus, which I thought she would be well able to do, as it did not keep her in bed or inconvenience her much. However, she decided to make another attempt to be cured, and consulted Dr. Gerster, who concluded to give her a chance by performing celiotomy. He made an incision to the right of the median line, worked his way down among adherent intestines to the right appendages, which he detached, ligated, and removed. The right ovary seemed to be transformed into a hematoma. *The original old sinus did not communicate with the peritoneal cavity, therefore not with the appendages, which latter had nothing to do with the abscess and the sinus.* The communication with the rectum could not be detected. The wound was packed with iodoform gauze, and closed in time, and the patient was discharged, *with her old sinus the same as before.* While the celiotomy was a success, it can hardly be claimed to have been of benefit to the sinus, for the cure of which it was performed.

The practical conclusions of this paper are that—

1. The formation and persistence of abdomino-pelvic sinuses after celiotomy and laparatomy should be prevented by all the means at our disposal.

2. Such sinuses cannot always be prevented, no matter how careful we are.

3. A certain number of early, moderate cases heal under appropriate treatment, and even a few old cases may recover after operation.

4. Celiotomy, or the opening of the abdominal cavity, is usually not necessary or beneficial in treating these sinuses, unless it can be distinctly shown or suspected with good reason that the focus of suppuration can be reached only in that way.

5. Through-drainage into the vagina, whenever practicable, forms the best method of curing deep sinuses.

6. In some cases, where the other methods, medical and surgical, have failed, and where the general health is fair and the sinus gives but little inconvenience, it is justifiable not to subject the patient to the risks and uncertainty of an abdominal section (celiotomy), but to advise her to "let well enough alone" and keep her sinus so long as she can live comfortably with it.

SEPTICEMIA AND ITS TREATMENT WITH OXYGEN.¹

BY

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THERE is scarcely a physician, whatever his line of practice may be, who is not brought into more or less intimate contact with septicemia. Perhaps there is no disease from which physicians suffer so frequently in their own persons. Its treatment is consequently a matter of unusual importance, whether it be regarded from the prophylactic standpoint or include the consideration of measures for attacking it when actually present. The disease has many varieties, or perhaps it is better to say grades of intensity, and I shall only attempt to consider, at

¹Read at the annual meeting of the American Gynecological Society, Philadelphia, May 16th, 1893.

least in the main, those of its forms and phenomena with which the gynecologist and the obstetrician are apt to be confronted. It is only since the development of bacteriological science that our knowledge of the etiology of this disease has been definite. Upon bacteriological investigation we must also depend, to a greater or less degree, for the settlement of questions concerning its prognosis and treatment. Notwithstanding these facts, the part which the clinician has to play in this disease always will be an important one, perhaps the most important.

Fundamental to the consideration of this subject are the following facts: The blood is the vehicle by which noxious as well as nutritious elements are carried to all parts of the body. The blood, in the infectious diseases, contains injurious elements which are clearly demonstrable, and their injurious effects are also susceptible of demonstration. The virulent effect of these elements varies under different conditions, according as their number and vitality are small or large, and, with reference to the individual, according as his resisting power is great or small; it being understood that different individuals differ in their resisting power, and that the same individual offers greater resisting power at one time than another. These preliminary considerations are of importance, for they explain the varying intensities of septicemia and the varying effects of therapeutic agents and measures at different periods even upon the same individual. In Neelson's classification¹ septicemia is defined as a toxic acute mycosis of the blood. Or, in plainer English, it is a condition of the blood in which poisonous effects are produced more or less rapidly and intensely by germs which it contains, the germs having entered the body from without as elements foreign to it or as normal parasites of the body, and, comparatively harmless under ordinary conditions, have undergone changes which have made them a source of injury.

These statements presuppose the fact that the normal blood of healthy animals does not tolerate pathogenic organisms; that when they are present it tries to get rid of them. The process of phagocytosis is the chief means of disposing of them and effecting a cure,² but when this process is defective for any cause, or when the vital forces of the body are feeble in their resistance or the pathogenic organisms especially active, the

¹ See Parke, "Mütter Lectures," 1892, p. 27.

² Arloing, "Les Virus," 1891, p. 203.

symptoms of septicemia are apparent. The present pathology of septicemia seems to rest upon foundations which are firm. The experimental portion of the evidence upon which it rests appeals strongly to the convictions even of those who are without practical experience in bacteriology, and may fairly be adduced as argument by such. Some of that evidence is as follows: In rabbits fatal septicemia may be produced in eight days by injections of the *Microbacterium agile* of Davaine.¹ In house mice septicemia may be induced by injections of Koch's bacillus of septicemia or the putrefying fluids which contain it. The symptoms produced are considered characteristic of the disease, and the bacilli themselves may be found in the leucocytes and subcutaneous tissue about the seat of inoculation and in the blood vessels. Rabbits and guinea-pigs may also be infected by similar means, but not to the same extent.² Injection of a few drops of a culture fluid of *Bacillus pyogenes fetidus* will induce septicemia in mice and guinea-pigs.³

Yet more convincing are the experiments of Garré, Bumm, Bockhardt, and Schimmelbusch, because performed upon themselves. Garré produced phlegmons on his arm from injections of a pure culture of *Staphylococcus pyogenes aureus* of the third generation, the phenomena of the disease continuing several weeks. Schimmelbusch found that the bacteria, when rubbed into the unbroken skin, penetrated the hair follicles, proliferated and then infected the tissues. In Bumm's experiments abscesses were produced, and the abscesses contained large numbers of *Staphylococcus pyogenes aureus*, with cultures of which the experiments had been performed.⁴ Evidence of another character is furnished by Escherich, who examined milk obtained from the breasts of thirteen women who were suffering with puerperal fever. In none of the cases was there excoriation of the nipple or glandular abscess. From ten of the specimens staphylococci were obtained from the secretions of both breasts, and from one from the secretion of one breast. In these cases it was believed, and on evidence which seems to be perfectly trustworthy, that the organisms entered the blood by way of the uterus and were excreted with the milk. Bacteria

¹ Arloing, l. c., p. 130.

² Delafield and Prudden, "Handbook of Pathological Anatomy and Histology," 1889, p. 89.

³ Parke, l. c., p. 81.

⁴ Parke, l. c., p. 73.

in the lochia of women suffering with puerperal fever were found by Mayerhofer. Coze and Feltz, investigating the same disease in 1869, found punctiform bodies, solitary or in chains, in the blood and secretions. Injections of solutions of these substances into the bodies of healthy animals resulted in evidences of infection. Further investigations in this disease were made by Chauveau in 1882, and puerperal fever was reproduced in animals with the first two generations of cultures of the isolated microbes. In 1883 Arloing showed that the virulent microbe in puerperal fever could be reproduced with its morphological and pathogenic characters in almost an indefinite series in a medium of beef tea. The same conclusions were reached by Fränkel, at about the same time, with cultivations upon gelatin.¹

The following interesting experience of Eiselsberg is quoted by Parke:² In four cases of fever following injury and operation a diagnosis of septicemia was made by means of a bacteriological examination of the blood. Acute rheumatism was known to be present in one of them, but the bacteriological examination showed that there was also osteomyelitis. In three of the cases the blood contained staphylococci, in the fourth streptococci. In eight other cases of septic disorder which were seen by Eiselsberg a correct diagnosis was reached by bacteriological examination.

The microbes which are to be found in cases of septicemia are the streptococci³ and staphylococci, together with their soluble products.⁴

¹ The foregoing quotations from Arloing, l. c., p. 35 et seq.

² Loc. cit., p. 43.

³ The streptococcus has been found by Predöhl and Fränkel in cases of peritonitis (Parke, loc. cit., p. 130).

The streptococcus and staphylococcus have been found by Bumm in puerperal peritonitis. Bumm considers putrid peritonitis as usually the result of surgical procedures (Parke, loc. cit., p. 140).

Babes considers ordinary puerperal fever as a streptococcus invasion, but the pyemia following abortion as the work of the staphylococcus (Parke, loc. cit., p. 72).

It is hardly necessary to say that the terms puerperal fever, puerperal cellulitis, puerperal peritonitis, and puerperal septicemia all mean practically the same thing—that is, that poisonous effects have accompanied the puerperal condition as the result of infection.

⁴ Rodet and Courmont have found that the same results were to be obtained from the soluble products of staphylococci and streptococci as from cultures of the microbes (Arloing, loc. cit., p. 203).

In the cases of so-called mixed infection other microbes are also to be found. Much attention has been paid during the past year to the *Bacterium coli commune*, which is ordinarily a harmless inhabitant of the intestine, but becomes pathogenic in the presence of decomposing matter in the intestine, as in cases of prolonged constipation.

The forms of septicemia with which one necessarily becomes acquainted in the practice of gynecology and obstetrics may be the result of—

1. Decomposition of retained material in the intestines, with absorption of toxic products resulting therefrom.

2. Absorption of the products of retained and decomposed material following abortion or labor at term, through the uterine lymphatics or any divided portion of the uterine mucous membrane.

3. Intoxication associated with surgical procedures upon the abdominal and pelvic organs.

The first of these varieties is very much more common than is generally believed. Women who suffer with constipation which goes unrelieved for long periods of time, and who present the outward appearances of anemia and malaria, are very often simply victims of septicemia. Parke called attention to the influence of the *Bacterium coli commune* in such cases in the "Mütter Lectures" for 1892, and laid stress upon the importance of thoroughly clearing out the intestines prior to operations in which the intestines might be directly or indirectly involved, thus anticipating harmful effects from the development of the bacterium.

The second form of septicemia, in which there is decomposed material within the uterus, together with the toxic germs (*streptococcus*, *staphylococcus*) which develop and produce infection in such a medium, may present mild symptoms and be readily susceptible to treatment, or it may so overwhelm the entire organism that no treatment will be of the least benefit. Such cases are often extremely insidious, running a comparatively mild course for days or weeks while undermining the vital forces beyond the possibility of repair.

The third form of septicemia with which this paper is concerned is usually attributed to some conscious or unconscious fault on the part of the surgeon; to dirty hands or dirty instruments; to the direct introduction of poisonous germs. This is

but a half-truth, for we now know that a relatively clean operation (absolute cleanliness being comparatively unattainable) in tissues that are unusually sensitive may result seriously. The individual equation eludes all attempts at antisepsis or asepsis. An antiseptic may be an irritant, and often provokes, in sensitive tissues, trouble which the laboratory experiment taught that it would prevent. A scrubbing brush may carry disease in its bristles, or it may be used so vigorously that the protecting epidermis will be removed and infection invited. The bruising and tearing of tissues, their prolonged pressure or exposure, and the various faults in the use of the ligature are quite as influential in the production of septicemia as the introduction of a few germs which it is the business of the blood cells, and particularly of the peritoneum, with which most of the operations of the gynecologist are directly or indirectly concerned, to dispose of.

The symptoms which more than any others mark the presence of septicemia and demonstrate the pernicious effect of the toxic agent are referable to the nervous system. Such are the paralysis of the muscular coat of the intestine, uncontrollable vomiting, obtuseness of the intellect, or mental excitement with spasmodic movements of muscles or groups of muscles. Coincidental with these grave symptoms there may be the greatest activity in the eliminative organs—the skin, the kidneys, the intestines, the lungs—as if Nature were making frantic efforts to get rid of the accumulating load. With favorable conditions for the development of the toxic germs within the body, the struggle is an unequal one. Okintchitz¹ has found that the prognosis depends directly upon the number of the microbes, a great number of them rendering it unfavorable, even though there be no metastatic deposits. The object of treatment, therefore, in cases in which the blood contains or is likely to contain such toxic elements as have been under consideration, is twofold—namely, to sustain the natural forces, so that in the struggle which we are told the healthy elements of the blood are constantly waging against the toxic the former may be victorious, and, in addition, to use if possible such means as shall directly destroy or neutralize the effect of the toxic elements.

The natural forces are to be sustained by the greatest possible abundance of the most concentrated food substances, especially

¹ Parke, loc. cit., p. 78.

milk, and by an abundance of alcohol. A starvation diet is as inappropriate in the treatment of septicemia as in the treatment of typhoid fever and other wasting diseases. The rôle which is played by alcohol is probably identical with that which it exercises in the fevers. The tolerance which delicately organized women show for large quantities of alcohol in all these conditions is remarkable, and seems to indicate that its toxic effects are expended in antidotal action upon some other poison. But I do not propose to argue at length upon the value of alcohol as a germicide at the present time, decided though I believe its value is, and conscious though I am that there are few substances which can so readily be brought in contact with the elements of the circulation. The object of this article is more particularly to direct attention to the availability and utility of oxygen as a means of treatment. The facility with which oxygen is absorbed by the blood, the function of the hemoglobin in carrying it and distributing it to the tissues, and the oxidation which is accomplished through its affinity for nitrogen, hydrogen, and carbon, are fundamental physiological facts which require only a passing notice. The capacity of the blood for absorbing oxygen is a more complex matter, for it involves consideration of the state of the blood at the time of treatment, the functional activity of the lungs, the tension of the gas, etc.

For these reasons the experiments which have been made upon animals (Thompson, Valenzuela), and those which have been made by individuals *in health* upon themselves (A. H. Smith, Krafft), as to the influence of inhalations of oxygen, cannot furnish us with positive deductions as to what may be expected when disease is present. I do not hesitate to say, however, that they are of great value, and should be studied side by side with the clinical investigations, which, up to the present time, have not been numerous.

The negative evidence of the value of oxygen consists in the distress which one feels when the supply is insufficient, and the anemia which is so common in the winter among those who are shut up more or less completely in over-heated and under-ventilated houses. We are too apt to lose sight of the fact that in the ordinary sick-room, say twelve to fifteen feet square, with a patient and one or more attendants, each of whom requires sixteen cubic centimetres of atmosphere per respiration, with a stove fire or hot air from a furnace, and with the combustion from

lamps, gas, or candles, the windows being tightly closed, the conditions are not favorable for the patient who has to remain in the room all the time. The difference in results between a deficient and an abundant supply of oxygen is seen in the records of treatment of epidemics of typhus fever and other infectious diseases when the cases in one series are treated in hospital buildings and in another in tents. Another instructive fact is the comparative absence of septicemia among Indian puerperal women so long as they lead an out-of-door life; and the same is more or less true of all women who lead an out-of-door life. This also is indirect evidence, but nevertheless quite convincing. On the other hand, if it is not oxygen which guards against septicemia in such women, it is not cleanliness, that being unknown as it is understood in well-appointed hospitals; and, again, when these people become partly civilized and live in houses they suffer with infectious diseases like other people.

Dark blood, outside the body, which absorbs oxygen becomes decarbonated, bright—that is, arterial. The effect will be the same when it is diffused into the blood through the mucous membrane of the lungs or alimentary tract. This suggests the very important question of tension and pressure in the use of oxygen. Atmospheric air being a mixture ($O + 4N$), one volume of oxygen will contain the equivalent in oxygen of five volumes of air, and the pressure of one atmosphere of oxygen will give an equivalent in oxygen of five atmospheres of air. The effect of very high pressures (twenty or more atmospheres) is harmful, or even destructive, to the essential elements of the blood.¹ A pressure of even three atmospheres produces convulsions in rabbits (Thompson). It is evident, therefore, that some care should be exercised to prevent the irritating effect of excessive absorption of oxygen. The saturation of the hemoglobin is a variable term in every case. It can be approximately determined for the blood in health, but in septicemia the corpuscles are small and many of them are disintegrated. The plasma, which in health contains but two per cent of the total volume of the oxygen of the body, will absorb somewhat more than this under pressure, and its increased volume of carbon dioxide, urea, and uric acid in septicemia will still further favor oxygen absorption and oxidation. Consequently the volume and pressure of oxygen which are appropriate in each case of septicemia

¹ Arloing, "Les Virus," 1891, p. 99.

must be determined by experiment in each case. The dark color of the blood, the small size and disorganized condition of many of the red globules in septicemia, and the shallowness of the respiration indicate a deficiency in the oxygen supply. The effect of an increase in the supply of oxygen in the blood upon the microbes of septicemia has not yet been definitely determined. Dr. William H. Welch, of Baltimore, in a personal communication says: "I do not think that it will be easy to explain the beneficial effects of inhalations of oxygen, which you have observed in cases of septicemia, by any known influence of oxygen on the bacteria themselves. When bacteria are submitted to an atmosphere of oxygen under high pressure, some species are killed. Some kinds of bacteria die more quickly when exposed to oxygen than when the air is excluded, but this is generally a matter of days. The products of bacterial growth are often of a very different nature when there is free admission of oxygen than when this is excluded. Then one has to consider whether a beneficial therapeutic agent which has no apparent effect on the bacteria or their products may not enable the animal organism to contend more successfully against the bacteria. The question, you see, is a complex one, but I do not think that you would be warranted in believing that the good results of your treatment are attributable directly to a germicidal influence of the oxygen on the bacteria themselves."

The experiments of Grossmann and Mayerhauser,¹ Pasteur,² Chauveau,³ and Arloing⁴ simply confirm the statements of Welch that a positive germicidal effect of oxygen upon microbes circulating in the blood cannot as yet be demonstrated, at least under such conditions as would be compatible with the welfare of the rest of the organism.⁵ The beneficial influence of oxygen

¹ Bacteria in general do not live more than twenty hours in oxygen at a tension of five to seven atmospheres.

² Culture fluids of the bacterium of chicken cholera are attenuated by exposure to atmospheric air.

³ Attenuation of culture fluids of carbuncle bacteria results from exposure to oxygen under high tension.

⁴ A tension of five to eight atmospheres of oxygen will suspend microbic life in the interior of a culture, and then destroy it. Simple contact of oxygen at normal tension, if sufficiently prolonged, will weaken the virulence of cultures (Arloing, "Les Virus," p. 235).

⁵ With reference to the influence of the higher equivalences of oxygen Welch writes: "Ozone and nascent oxygen are more powerful than ordinary oxygen in checking the growth of bacteria" (Medical Record, May, 1889).

W. G. Thompson (Medical Record, May, 1889) says it is impossible to take

inhalation in septicemia probably depends, therefore, upon some other than a germicidal action.

That which is noticeable when chemically pure oxygen is inhaled at such a pressure as is compatible with existing conditions of respiration is usually as follows: a stimulus to deeper respiration; warmth of the extremities, perhaps warmth of the entire body; increased tension of the pulse; a more natural color of the surface of the body, if it has been dark or very pale.¹

If the discoloration of the surface were an evidence of sepsis, improvement in this symptom is to be expected from the use of oxygen, provided it was used before intoxication had become too general.²

The stimulation of the blood current and of the respiratory function is, of course, directly favorable to the purification of the blood by elimination of its toxic elements. The stimulation of the nerve centres presiding over functional activity, which is possible if intoxication is not too pronounced, is apparently the effect of the oxygen, and this, if sufficient and continuous, will produce a favorable result whether there is direct germicidal action upon the bacteria in the blood or not.

One of the most noteworthy symptoms attending this method of treatment is the drowsiness and sleep which are induced. I have observed the same thing when the windows of a sick-room were thrown open and a large volume of fresh air was introduced. The increased freedom of respiration, the warmth which suddenly diffuses through the entire body, the condition of *bien aisé* which patients at once assume, are certainly suggestions that

ozone into the blood through the lungs, and that even if it were possible its presence would be incompatible with the normal continuance of the circulation.

Oberdörffer (Centralbl. für Bakteriöl. und Parasit., 1890, vii., p. 350) found that cultures of *Staphylococcus pyogenes aureus* were destroyed after half an hour of exposure to a stream of ozone which had been passed through a Babes' ozone tube, and concluded that ozone was unfavorable to the development of disease-producing micro-organisms, also that the ozone in the blood, if in sufficient concentration, exercised a destructive influence upon micro-organisms which were introduced therein.

¹ Thompson says he has never seen a favorable change in the color of the surface when oxygen was inhaled by cyanotic individuals, nor in cases in general in which there was heart disease.

² A. H. Smith reports two cases of diphtheria cured by Beigel by this means, and a case of pyemia of his own, also cured. Valenzuela placed rabbits suffering with induced septicemia in a chamber containing pure oxygen, and cured them of the disease.

a powerful change is being wrought in the body, and if the administration of oxygen is begun sufficiently early—that is, before the centres of functions are paralyzed by the poisonous agencies—it would seem that much benefit could be expected from the use of this remedy. The only ill effect which I have ever seen consists in pain referred to the region of the stomach, which was probably due to swallowing the oxygen, which may have been administered under too great pressure. (I have observed this symptom in two cases, one a case of septicemia attending prolonged retention of feces, and the other a case of mammitis following labor at term.)

With reference to the method of administering the oxygen, my experience leads me to believe that the simpler it is the more desirable will be the result. The principal precautions seem to me to be the determination that the oxygen is pure, that it be administered sufficiently early in the history of the disease, and that it be administered only in sufficient volume to be readily and comfortably tolerated.

The histories of two cases are added, in one of which it was used successfully; in the other it produced decided benefit at first, but this improvement was followed by overwhelming symptoms of intoxication, the case terminating fatally. The two cases are given as types of what may be expected in the way of benefit from the gas, and of its limitations.

CASE I.—Mrs. F., German, age 48. Hegar's operation, October 6th, 1890, for large myoma uteri. Operation very difficult on account of adhesions. Peritoneum torn in many places. Profound shock. Drainage tube two days. Bowels moved third day. Evidences of heart failure third day. Tincture of digitalis and tincture of strophanthus in ten-drop doses every two hours; turpentine, muriate of iron, and carbonate of ammonia also used at sufficiently frequent intervals. Eighth day, urine contains albumin. Tenth day, abscess of abdominal wound discharging freely. Eleventh day, collapse; pulse 150, temperature 103°, respiration 40, cyanosis. Atropia, morphia, whiskey, ammonia administered. Oxygen by inhalation attended with great relief to respiration and refreshing sleep. Acute nephritis developed, and oxygen inhalations were continued during subsequent week. The oxygen was inhaled from five to ten minutes at a time, according to the urgency of the symptoms, and discontinued as the respirations became

deeper and the skin natural in appearance. The patient ultimately made a complete recovery. It was believed that the oxygen repeatedly warded off impending death.

CASE II.—Mrs. H., American, age 39. Operation for removal of dead and macerated fetus, January 11th, 1892. Septic at time of operation. Uterine tissue very firm and dilated with great difficulty. Septic peritonitis quickly developed. Uterus irrigated frequently. Symptoms urgent, oxygen inhalation on the fourth day, with immediate relief to dyspnea. Drowsiness and sleep, apparently due to the oxygen. Catarrhal gastritis very troublesome; delirium. Renal functions very active; bowels thoroughly evacuated, fecal matter having been retained a long time. Sepsis became universal, without formation of pus. Oxygen used at intervals for a week, and then for two days almost continuously. After the intoxication became general there was no decided benefit from the oxygen, except in a certain amount of relief to dyspnea. It may have delayed the fatal issue, which occurred on the twelfth day. The effect during the first few days was markedly beneficial, but evidently insufficient to stem the tide of advancing sepsis.

85 MADISON AVENUE.

ON RETENTION OF MENSTRUAL FLUID, IN CASES OF BICORNED UTERUS, FROM UNILATERAL ATRESIA OF UTERUS OR VAGINA.¹

BY

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(With one illustration.)

THE case which forms the basis of the following communication was one of bicorned uterus in which retention of menstrual fluid occurred, owing to the absence of communication between the right half of the septate cervix and the vagina. The extreme distention of the right side appears to have caused a rupture of the cervical septum, allowing a portion of the accu-

¹ Read before the American Gynecological Society, May 18th, 1893.

mulated fluid to escape, with relief to the more urgent symptoms. But, the rent being situated high up in the cervical canal, a considerable quantity of the blood was still retained. This eventually underwent suppuration, with the result of producing a unilateral pyometra and an offensive vaginal discharge extending over a period of several years.

A married woman, age 28, residing at Greenwich, was admitted into St. Thomas' Hospital, London, August 6th, 1892, on account of a purulent discharge from the vagina, which commenced five years previously, and which, after being free from ill odor for the first twelve months, had then become offensive, and had continued to be so ever since.

She gave the following history : Menstruation commenced at the age of 13. At the age of 15 she took a cold bath during a menstrual period. Next day she was seized with pain in the lower part of the abdomen, which rapidly extended, causing her to feel very ill. Menstruation ceased before the usual time, and a tender swelling became perceptible in the hypogastrium. The bowels did not act for two weeks, and when they had at last been relieved by enema the swelling seemed entirely to disappear. She remained a few more days in bed, and then got up feeling quite well. When menstruation returned, seven months later, she was examined and told that the swelling had not quite disappeared. The catamenia now appeared regularly every twenty-eight days, the flow being profuse and lasting for seven days. She married eight years ago, at the age of 20. There had been no pregnancy. Her present symptoms began, apparently without cause, about five years ago, when she commenced to have an inoffensive purulent vaginal discharge, very profuse, but not constant. It would cease for a few weeks and then reappear. Gradually the discharge became constant, and menstruation became more frequent, and the flow darker and scantier. If the discharge ceased for a few days the patient became very ill and had to go to bed, the symptoms being headache, sickness, faintness, and pains in the back and pelvis. The symptoms were relieved as soon as the discharge reappeared. About four years ago the discharge became offensive. During the last twelve months she has lost flesh. Three weeks before admission she had an attack of severe pain in the right iliac region, and the doctor who then attended her advised her to come into hospital.

On her admission she was pale and somewhat thin. Her temperature ranged between 98.6° and 100° . The urine was clear, had a specific gravity of 1.025, and contained a little albumin. There was nothing unnatural detected on examining the abdomen. A vaginal examination was made under ether. A highly offensive purulent discharge, mixed with altered blood, was seen issuing from the os uteri. The uterine sound passed the normal distance, the canal being directed to the left. Bimanually a fixed mass, the size of a closed fist, was felt, depressing the vaginal roof so as completely to obliterate the right lateral fornix, and extending upward behind and to the right of the uterus. The mass was thought at first to be a sloughing fibroid in the substance of the right posterior wall of the cervix. It was found, however, that downward pressure on the upper end of the tumor conveyed a much more direct impulse to the lower part of the tumor than to the cervix, whilst downward pressure on the fundus conveyed a much more direct impulse to the cervix than to the lower end of the tumor. It was, therefore, concluded that it must be a suppurating cyst outside the uterus, with a fistulous communication between it and some part of the uterine canal.

Under these circumstances it was decided to open the abdomen and explore the condition of matters from above.

On August 12th an incision was made in the middle line of the lower part of the abdomen, and two fingers were passed into the pelvis. Some omental adhesions having been separated, the right tube and ovary were found adherent, but otherwise normal, except that there was a yellowish-colored dilatation at the uterine end of the tube. Further exploration revealed a bicorned uterus with each horn well developed, the right being larger, more globular in shape, and situated further back in the pelvis than the left. The two horns converged toward the isthmus, where they met, and were continued into a common cervix. A Fallopian tube passed upward and outward from the summit of each horn. The condition of the right tube has already been described. The left was normal.

A soft swelling could be felt beneath the peritoneum on the right of the cervix. A finger in the vagina showed the swelling to be the one which had been felt depressing the right lateral fornix; the mass within the abdomen, which had been thought to be continuous with it, proved to be the right horn

of the uterus. The pelvis having been sponged clean and the abdominal wound closed in the usual manner by sutures of silk-worm gut, the patient was placed in the lithotomy position with a view to dealing with the swelling per vaginam.

A scalpel was made to enter the swelling at a point immediately to the right of the os uteri, and was passed directly upward. A considerable quantity of foul-smelling pus mixed with blood thereupon made its escape. The opening was now enlarged sufficiently to admit the finger. The finger was felt to pass first through the opening in the vaginal mucous membrane, then through some loose connective tissue, and finally, through another constricted opening, into a cavity, of more or less globular shape, lined by a smooth membrane and containing pus and blood. In the roof of this cavity, near the middle line of the patient's body, was discovered an aperture large enough to admit a uterine sound. A sound, passed through it, took a direction upward to the right, and was felt, bimanually, to have entered the dilated right cornu of the uterus.

It was now evident that the smooth-walled abscess cavity represented the expanded right half of the cervix, and that the aperture in its roof was the right os uteri internum. The sound showed the length of the right cornu, measured from the os internum upward, to be two and one-half inches. On passing a probe through the os uteri externum into the left half of the cervix, there was felt to be a thin septum between it and the abscess cavity. In other words, the cervix was septate. No aperture was detected in the septum, but it was clear that a communication existed, as pus and blood issued from the os externum when the artificial opening from the vagina into the dilated right half of the cervix was closed by the introduction of the finger. The distance from the opening in the vaginal roof to the right os uteri internum was now measured and found to be one and one-quarter inches.

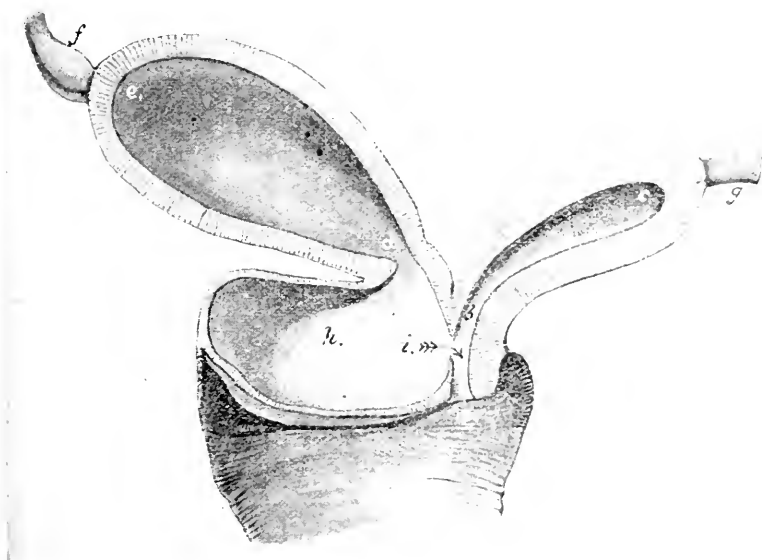
The abscess cavity was irrigated with corrosive sublimate solution 1 : 5000, and the patient removed to her bed.

No ill effects followed the operation. The temperature for the first three days ranged from 98° to 100°; after that it was normal.

On August 17th, the discharge ceasing, a vaginal examination was made, and the newly made opening was found to have closed. A probe was accordingly passed and a little foul-smell-

ing discharge made its way out. Later in the day a pair of straight, strong uterine scissors was passed, with one blade in the canal of the left half of the cervix and the other in the abscess cavity, and the cervical septum was divided almost if not quite along its entire length.

The stitches were removed from the abdominal wound on August 19th, and on the 26th the patient was allowed to leave her bed. On the 30th the abscess cavity was found to have contracted, so that the canal of the right half of the cervix



Uterus bicornis, with atresia (and consequent dilatation from retention of menstrual fluid of the right half of the septate cervix. *Diagrammatic.* *a*, os uteri externum of left side; *b*, os internum of same; *c*, inner surface of fundus of left horn; *d*, os internum of right horn; *e*, inner surface of fundus of dilated right horn; *f*, right Fallopian tube, showing a dilatation at its uterine end; *g*, left Fallopian tube; *h*, right half of cervix occluded and dilated, the contents having originally been menstrual fluid from the right horn; *i*, site of rupture of cervical septum from overdilatation, resulting in the establishment of a communication between the right and left cervical canals, through which, presumably, pathogenic micro-organisms found entrance to the right half of the cervix, setting up suppurative changes in its remaining contents and transforming it into an abscess cavity.

Measurements.—Length of entire uterine canal on left side, *a* to *c*, 6 centimetres; of cervical portion only, *a* to *b*, 2.5 centimetres; distance from *a* to *d*, 3 centimetres; distance from *d* to *e*, 6 centimetres

was now merely represented by a narrow track. The septum remained open.

On September 7th the patient was discharged. She presented herself a few weeks later, perfectly well. She had men-

struated normally; there had been no return of the purulent discharge. The cervical canal remained single, communicating freely with both cornua.

The case was one of singular interest. The accompanying diagram represents the condition of the parts at the time of the operation. *Without* the exploration through an incision in the abdominal wall the precise condition would have remained uncertain; *with* it the nature of the case is capable of being set out as clearly as if one had had an opportunity of making a post-mortem dissection. It is evident that there existed a bicorned uterus with septate cervix; that the right half of the cervical canal did not communicate with the vagina; that the menstrual fluid from the right cornu of the uterus was consequently retained; that the distention was at length relieved by a spontaneous rupture of the upper part of the cervical septum; that the evacuation of the retained blood, though sufficient to relieve tension, was not complete; that suppuration of the remaining contents of the cavity occurred; and that, some months later, the discharge became offensive from putrefactive change in the retained blood, the quantity of which, no doubt, received additions from the right cornu of the uterus at each menstrual period.

No similar case has previously come under my own observation. In looking up the literature of the subject, however, I have been interested to find several instances on record more or less closely resembling it. I propose briefly to mention a few of the most striking of these.

Breisky relates two cases of pyometra and pyokolpos lateralis.¹ The first was that of a girl the subject of a double uterus. "She had five brothers and two sisters, all well formed. Often, as a child, she had suffered from abdominal pains, supposed to be due to worms. At the age of 16 she began to suffer regularly every month, for three or four days, from severe pelvic pains, but no menstrual discharge appeared. There were obstinate constipation, great anemia, and difficult micturition. When on the point of seeking medical advice something burst, to her great relief, and a quantity of pale-red, thickish, fetid fluid escaped. The difficult micturition returned. Breisky punctured a swelling in the vagina and an abundant quantity of pus was discharged. The cavity of the abscess was carefully

¹ Archiv für Gynäk., 1871, pp. 451 and 848.

washed out. Subsequent dilatation enabled the condition of parts to be ascertained, and Breisky divided the vaginal septum and part of the uterine septum. The patient made a good recovery, and the right half of the uterus (the seat of the abscess) afterward underwent such contraction that its cavity appeared shorter than that of the left. As ascertained by the sound, the right measured four centimetres and the left six centimetres."¹

The second case was that of a patient, age 20, who first menstruated at 17. After the first year much pain came on, and a year later she had one day a sudden discharge of thick, treacly blood. There still, however, remained a small swelling on the left side. On admission there was a tender swelling in the left iliac region. The hymen was intact, the vaginal canal wide. On the left side of the vagina a soft, painless, fluctuating tumor was felt, extending from half-way up the vagina to the portio vaginalis. The anterior fornix was obliterated. The os uteri was pressed to the right. On bimanual pressure of the uterus a quantity of thin, offensive fluid escaped, leaving the tumor smaller. An opening, equal in size to a five-franc piece, could then be felt two centimetres deeper than the portio vaginalis. The sound passed five centimetres to the right, through the os. The diagnosis was lateral pyometra and pyokolpos. An incision was made and the vaginal septum slit up. The left os uteri was then found. The patient made a good recovery and left the hospital four weeks after the operation.

In the *Charité-Annalen*² Gusserow describes a case of lateral pyokolpos, with pregnancy, occurring in a patient with a double uterus, age 21. Menstruation commenced at the age of 19 and was irregular and painful. For six weeks before admission she had a profuse discharge, which for the last three weeks had been offensive. She had had much pain and tenderness. On examination the vagina was found narrow, the uterus enlarged. The cervix was deflected backward; the os was crescentic, with the concavity to the left; a quantity of very fetid fluid came from the os. The cavity of the uterus, which was lying to the left, was empty. The pus came from a small opening in the right wall of the cervical canal. The diagnosis was double uterus, occlusion of the right half, and pyometra. The cervix was

¹ Abstract by the late J. J. Phillips in the New Sydenham Society's "Biennial Retrospect of Medicine and Surgery," 1871-72, p. 370.

² Bd. xv., Berlin, 1890, p. 618.

split bilaterally; the septum was easily felt, and was removed as far as the internal os. Much foul pus welled out of the right side, but the size of the right half of the body of the uterus did not diminish. A large cavity could now be felt, but not the fundus. There was a free discharge for eleven days, when a sudden hemorrhage took place from the right horn, which had not contracted. By means of a curette a three months' fetus was removed. It was then found that pressure on the right wall of the vagina caused exudation of fetid fluid. This was explored, and it was found that a cavity extended from the upper to the lower part of the vagina. The septum was divided with a curved bistoury, exposing the right half of the vagina, which was closed below. That it was a second vagina was proved by microscopic examination of the septum. The patient made a good recovery. When the wounds had healed the condition of the parts could be made out very distinctly.

Kussmaul¹ quotes three cases of hematometra in double uterus. The first, related by Décès,² was that of a girl, age 16, who had menstruated for one year. For eight months a gradually increasing swelling had been observed in the left iliac region, more pronounced during menstruation. There was found to be a double uterus and vagina, the right side being normal, the left vagina ending blindly below. The left vagina was punctured, and decomposed blood escaped. The patient died from peritonitis. At the autopsy about two hundred grammes of decomposed blood, which had escaped from a ruptured cyst, were found in the abdominal cavity. This cyst consisted of several communicating saccules opening above into the left tube. The left uterus was enlarged and also contained decomposing blood.

The second case was reported by Leroy.³ The patient was 19 and had been recently married. She suffered great pain at each menstrual period. There was a double uterus, with retention of menstrual fluid in the right horn, forming a fluctuating swelling which nearly filled the true pelvis and reached almost to the umbilicus. A puncture was made with a trocar and enlarged by means of a scalpel, exit being given to a great

¹ "Von dem Mangel, der Verkümmerng und Verdoppelung der Gebärmutter," pp. 194-196.

² Bull. de la Soc. Anat., Juillet, 1854.

³ Journ. de Connaiss. méd., février, 1835.

quantity of fluid, the nature of which is not mentioned. Death occurred from peritonitis following the operation. The right horn of the uterus was found much thickened and enlarged, its cavity being of a considerable size.

The third case is quoted from Santesson.¹ The patient, a girl aged 18, had never menstruated. The external genital organs were normal. The vagina was double, the septum being a line and a half thick. The right side barely admitted a female catheter; the left just admitted the little finger. At the upper part of the left vagina a rather bulky, spherical tumor could be felt. The tumor was continuous with a swelling in the abdomen, of the form of the uterus, reaching to the umbilicus. This swelling had been gradually increasing for three years. The vaginal septum was slit up with seissors, and an incision half an inch long and three-quarters of an inch deep was then made with a bistoury in the most projecting part of the swelling. As no cavity was reached, a sound was passed through the incision and felt to enter a cavity without touching the opposite wall. Death followed on the seventh day from peritonitis.

Beronius relates a case of hematometra and hematokolpos in the occluded right half of a double uterus and vagina.² The following particulars are from an abstract of the paper in the *Monatsschrift für Geburtskunde*, 1862, page 481. The patient was a single woman, age 21. Menstruation had commenced at 18; periods of amenorrhœa alternated with dysmenorrhœa. For the last three weeks there had been a sensation of severe pain and pressure in the pudenda, as if something were about to be expelled. Nothing abnormal was detected on abdominal examination. Obliquely above and to the right of the vagina was an elongated, nearly cylindrical body, extending nearly the whole length of the vagina. The os uteri was high up and to the left. Near the vaginal entrance the wall of the swelling seemed thin, and here fluctuation could be felt. An opening was made and led into a cavity, from which a quantity of blood, partly decomposed and partly clotted, made its escape. The pain was relieved, but on the fifth day peritonitis supervened and proved fatal in thirty-six hours. At the autopsy there was found a double uterus and vagina. The left side was normal, the right had been occluded. The right uterus passed insen-

¹ Pr. Med.-Zeitung, 1857, No. 50.

² Preuss. Medicinal-Zeitung, 1862, No. 33.

sibly into the right vagina. The right ovary and tube were hypertrophied; the latter had ruptured and permitted the escape of stagnant blood into the abdominal cavity.

Simon and Frennd have also observed cases of hematometra with hematokolpos, the former having recorded one case, the latter two. Simon's case¹ was that of a girl of 15 in whom the catamenia commenced the previous year and appeared normally three times. A swelling then developed in the external genitals; she had pains in the back, abdomen, and pelvis, and painful micturition, and became so ill as to be confined to bed. Eight weeks later there was a copious discharge of blood and the swelling disappeared. On leaving her bed the tumor returned, and every two or three days she had discharges of blood, so that she became more and more anemic. On examination a tense, fluctuating, bluish tumor was seen between the labia, covered with normal skin; it was on the left side and extended up along the side of the vagina. The tumor was equal in size to a hen's egg above and below; the intervening portion was smaller and cylindrical. The finger passed up to the right of the swelling, but it was only after the patient had been anesthetized that the os uteri was reached. It was found displaced to the right, the left lip being adherent to the tumor. The length of the canal was normal.

The diagnosis lay between a peri uterine and perivaginal extra-peritoneal hematocele, and atresia of the left half of the vagina with bicorned uterus and retention of menstrual fluid.

No communication was found between the vagina and the blood tumor. An incision an inch long in the most projecting part of the tumor led, through a wall about a millimetre thick, into a deep cavity from which six ounces of dark, thick blood escaped. The finger, deeply introduced, came upon what was evidently the os of the left half of the uterus. The lips of this half were thicker than on the right side. Two fingers introduced simultaneously, one in each vagina, felt the two uterine orifices distinctly. The vagina was thus ascertained to be divided all the way down by a thick septum.

The patient made a good recovery and left the hospital on the twelfth day. She was seen again ten weeks later. She was menstruating regularly and had become less anemic. Simon thought that an enlargement of the opening in the vaginal sep-

¹ *Monatsschrift für Geburtskunde*, vol. xxiv., 1864, p. 292.

tum (which had now contracted) was undesirable on account of the risk it would entail of double pregnancy.

Freund's cases are recorded.¹ The first was that of a girl of 17, who commenced to menstruate at 13, and in whom the catamenia, after being regular for some time, began to appear irregularly. There were now fulness and tenderness in the hypogastrium, and a fixed tumor on the right side of the vagina, descending 2.5 centimetres below the level of the portio vaginalis. The uterus lay to the left; its cavity measured 6.5 centimetres in length. The diagnosis was hematometra and hematokolpos in the right side of a bicorned uterus, with double vagina, the closed-up half of which was rudimentary. An incision was made in the swelling and half a tumblerful of dark chocolate fluid evacuated.

The second case was that of a girl of 16, who commenced to menstruate at 13. Menstruation was painful, and recently had been excessive. The patient's health had gradually failed. She suffered from insomnia and was occasionally delirious. Defecation and micturition were attended with tenesmus. The hypogastrium was very tender. Within the vagina a tumor was found, reaching down to the lower border of the middle third of the right side. In the upper third the tumor was narrower. A small opening could be seen on the vaginal surface of the tumor, the lower part of which gave evidence of fluctuation. The length of the uterine cavity was five centimetres. The diagnosis and treatment were the same as in the first case.

Another case of unilateral hematometra with hematokolpos in a patient with a bicorned uterus is recorded very fully and minutely by Näcke.² The patient was 20 years of age. Menstruation commenced at 15, and was for some time irregular and accompanied with pain in the back, head, and right side of the lower part of the abdomen. A swelling equal in size to a hen's egg gradually formed in the right iliac region; this swelling was particularly painful at the menstrual periods, which, after the age of 17, became more regular, though they still remained painful.

On examination a swelling was felt in the right iliac region, tense, elastic, and fluctuating. Per vaginam the os uteri was felt to be high up in the middle line. The anterior vaginal

¹ Berl. Beiträge für Geburts. und Gynäk., ii., p. 26.

² Archiv für Gynäk., ix., 1876, p. 471.

wall was bulged downward by a swelling continuous with that felt through the abdominal wall. Winckel diagnosed a bicorned uterus with hematometra in the right half. The swelling was punctured and some dark-brown, syrupy blood escaped. The canula became blocked and was withdrawn. Next day the puncture was repeated and more fluid came away. On the day following this second operation the patient complained of sudden pain in the right groin, and the abdominal tumor disappeared. The patient gradually became collapsed and died four days after the operation. At the autopsy the lungs were found to be edematous. There was extensive peritonitis, with a quantity of thin fluid lying free in the abdominal cavity. A ruptured cyst was found on the right side, consisting apparently of the right tube, but no communication could be traced between it and the uterine cavity. There was cystic degeneration of the right ovary. The right horn of the uterus was twice as thick as the left. The vagina was double, with no natural communication between the two sides; the perforation made by the trocar led from one to the other. The pelvic viscera were matted together by adhesions. Death resulted from peritonitis and septic absorption.

In a paper on "Absence and Atresia of the Vagina," by Dr. T. A. Emmet,¹ mention is made of a case of double uterus and vagina, with retention of menstrual fluid on one side. The patient was a very nervous woman, about 19 years of age, who had never menstruated regularly, and who sought advice on account of a sense of pressure and bearing down which had existed for several years. To the left of the vagina could be felt an accumulation of fluid, extending as high as the finger would reach, and from the rectum an elastic and nearly globular body could be felt closely attached to the uterus. When it was proposed to ascertain the character of the accumulation by the introduction of an exploring trocar the patient took alarm, and nothing is known of her subsequent history.

Two cases of hematometra in the rudimentary horn of a bicorned uterus are recorded by Hegar.² In the first case the patient was 26 years of age. Menstruation commenced at 14 and was regular and painless. At the age of 25 she was stated to have taken cold during menstruation, which now became fre-

¹ Transactions of the American Gynecological Society, vol. ii.

² Berliner Beiträge zur Geb. und Gynäk., iii., p. 141.

quent and painful. A swelling was subsequently discovered to right of uterus behind the pubes; the menses became scanty and infrequent, and peritonitis supervened. When Hegar saw the patient there was a tender, fixed, firm swelling, of the size of a goose's egg. The uterine body was felt in the posterior fornix; both it and the uterine appendages were normal. The tumor was explored per vaginam and found to have a thick wall. On reaching the cavity a tarry fluid escaped. The cavity was drained, but a second evacuation was necessary.

The second case was that of a patient, age 19, who commenced to menstruate at 15. Menstruation had been painless and regular at first, then irregular, and, more recently, regular but painful. In the intervals there was stabbing, burning pain in the right hypogastrium, with straining during defecation and micturition. On examination per vaginam a swelling was found behind and to the right of the uterus, a furrow being felt between it and the cervix. On an exploratory puncture being made blood exuded. Hegar discusses the diagnosis, which he thinks is easy, inasmuch as no tumor is known which springs from the isthmus uteri with a round or half-round pedicle.

L. Neugebauer relates¹ "two cases observed by him of one-sided hematometra with double uterus. The first patient was 19 years old. She had commenced to menstruate at 17; the flow was profuse, and there was excessive pain in the lower abdomen and pelvis. A swelling, larger than a fist, appeared in the hypogastrium. After menstruating regularly a few times there was amenorrhea and absence of pain for several months. Menstruation returned with great suffering. A swelling, extending nearly to the umbilicus, was to be felt on the right side of the abdomen. Having arrived at the diagnosis by the position, shape, and relations of the tumor, and fearing spontaneous rupture, Neugebauer opened the pelvic swelling with a bistoury by the vagina, and dark-brown, odorless, viscous blood, of the consistence of thin honey, flowed away. There was sharp abdominal pain on the second day, but the patient improved until the fourteenth day, when menstruation returned, and she died in three days with symptoms of peritonitis.

"The second case was that of a patient of the same age.

¹ Archiv für Gynäk., vol. ii., No. 2, 1871; abstract by the late J. J. Phillips in "Biennial Retrospect of Medicine and Surgery, 1871-72," New Sydenham Society, p. 369.

Menstruation scanty and painful. A swelling on the left side, nearly the size of the uterus at the sixth month of pregnancy. The uterine cavity of the right side freely communicated with the vagina. Dr. Chivat opened the swelling by the vagina by pushing an ordinary uterine sound into it. Slight fever and abdominal pain for the first three days. On the thirty-fifth day there suddenly supervened severe pain in the left hip, then high fever, frequent vomiting, and escape of blood-stained mucus from the vagina. She died in forty-eight days after the operation. Neugebauer refers to several published cases of the kind in which the ages ranged from 14 to 27. The length of time between the onset of the pains from retention of the menstrual discharge, and the commencement of the treatment on account of the hematometra, varied from five weeks to fifteen years. Out of fifteen cases operated upon, eight recovered and seven died."

In the New Sydenham Society's "Biennial Retrospect of Medicine and Surgery for 1873-74," page 385, Dr. C. H. Carter gives the following abstract of a case, reported by Nicolaysen,¹ of hematometra depending upon a double uterus, one of the cavities not communicating with the vagina:

"A patient, age 21, had suffered for three years from pain in the right side of the hypogastrium, especially at the periods. She was regular, though a little too profuse. For the same time she had noticed a swelling on the right side of the hypogastrium; this was slowly increasing. On examination an elastic, movable tumor, three to four inches long and one broad, was found in the right iliac region; lower down and more to the middle line another tumor filling the pelvis and rising half an inch above the symphysis. This was firmer, but less movable; both were painful on pressure. On vaginal examination no trace of the vaginal portion of the uterus could be detected. A tumor of the ovary, adherent to Douglas' pouch and pushing the uterus backward, was diagnosed. A puncture was made with the aspirator into the most prominent part of the swelling, through the vagina, and a small quantity of dark-brown fluid drawn off. Four days after the operation peritonitis set in, and the patient died on the ninth day. At the autopsy the uterus was found quite divided into two; each half corresponded with a Fallopian tube and an ovary, but the right cavity was not

¹ Nord. Med. Ark., vol. vi., No. 1.

in communication with the vagina: owing to this it had retained the menstrual fluid and become distended. There were also found abscesses in the left kidney, which was enlarged: the right kidney was absent; the suprarenal capsules were properly developed on the two sides."

Galabin describes the following case:¹ A girl, age 15, who had commenced to menstruate a year previously, suffered from severe dysmenorrhea and profuse discharge. There was no abdominal swelling, but, on examination bimanually per vaginam, a firm, globular tumor, equal in size to a uterus at the third or fourth month of gestation, was felt through the anterior vaginal wall. It was neither elastic nor fluctuating. The os uteri was high up, pushed backward, and flattened. The sound passed in easily the normal distance, the direction of the canal being toward the right. The diagnosis was retention of menstrual fluid in one half of a double uterus. The swelling was punctured by means of a trocar through the vaginal wall to the left of the os uteri, and thick, treacly fluid escaped. The opening was enlarged by means of a director and the finger, and the cavity slowly evacuated. The discharge was free for four days: it then became scanty and offensive. Symptoms of septicemia supervened, and on the twelfth day the patient had a sudden attack of severe pain, became collapsed, and died in the evening. No autopsy was permitted.

Thomas describes² the case of a married woman, age 39, in whom a uterine tumor, which had for sixteen years been supposed to be a fibroid, proved, on opening the abdomen with a view to its removal, to be a hematometra from retained menstrual fluid in one horn of a bicorned uterus. The patient had suffered excessively at each menstrual period, and had over and over again begged to be relieved by operation. Drs. Thomas, Emmet, and Hunter were agreed in the opinion that an operation would almost certainly prove fatal, and surgical interference was postponed. At last the woman's importunity prevailed and the abdomen was opened. The swelling had the appearance of a fibroid, but, there being evidence of fluctuation in it, a trocar was inserted, when about a pint and a half of retained menstrual fluid escaped. The true nature of the tumor was at once realized. The edges of the opening were stitched to the abdo-

¹ Transactions of the Obstetrical Society of London, vol. xxiv., 1882, p. 21.

² New York Medical Journal, vol. xxxv., 1882, pp. 517-519.

minal wall, and a drainage tube was passed into the cavity. The patient had some septicemia, but recovered. Dr. Thomas intimated his intention of shortly opening up the imperforate right horn of the uterus from the vagina, and releasing the uterus from its attachment to the abdominal wall.

I have not attempted to furnish an exhaustive bibliography on the subject. My aim has rather been to present in abstract (but in sufficient detail to be of practical use to future inquirers) a few typical and well-recorded cases exhibiting the chief varieties and complications of a rare and always puzzling condition. The condition is one that demands surgical interference for its relief, and it is important that intending operators, who must necessarily often be without the advantage of a previous personal experience of similar cases, should be provided with a ready means of reference to the experience of others. I trust the Society will accept this as my excuse for inflicting upon it so long a paper. The two great dangers that attend the operation are septicemia and rupture of a distended Fallopian tube. Fortunately both dangers can, in these days, be almost invariably obviated or overcome, the former by strict asepsis, the latter by slow evacuation of the accumulated blood so as to minimize the risk of exciting reflex muscular contractions, and, in the event of rupture taking place, by promptly opening the abdomen, cleansing the peritoneal cavity, and removing the ruptured tube.

I desire gratefully to acknowledge the valuable assistance I have received, in the preparation of the foregoing abstracts, from my friend and former pupil, Dr. Arthur E. Giles.

THE OPERATIVE TREATMENT FOR MYO-FIBROMA OF THE UTERUS.¹

BY

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DURING the fall of 1889, at a meeting of the New York Obstetrical Society at which the subject was discussed, I called

¹ Read before the American Gynecological Society, May 16th, 1893.

attention to the desirability of total extirpation of the fibromyomatous uterus. Since my first operation of complete hysterectomy, this, with few exceptions, has been my method by choice; and now, venturing to add a quota on the treatment of myo-fibromata of the uterus by this comparatively new operative procedure, I do so with the full realization of my inability to give either a long or favorable statistical table of my own experience, such as one should expect from an author when he advocates something not generally accepted.

It would be interesting to discuss the etiology of these by no means rare neoplasms: space, however, forbids this, and as yet there is nothing definitely decided—the opinions vary. Virchow, for instance, asserts that they are invariably the result of outgrowths from the uterine muscularis in which both vessels and connective tissue are concerned; others, again, believe that these growths arise from a proliferation of the muscularis of the small arteries, etc. My own researches seem to show that both views may in certain cases be correct, both factors being combined. Other views than these are also held.

The operative treatment has doubtless made the greatest advance, and the credit for this is due to the endeavors and publications of August Martin, of Berlin, he being the one who, from the great material at his disposal, has gradually and deliberately worked out a method of operating which many of us are compelled to admit as ideal in this class of cases—viz., removal of the *entire* organ where the neoplasm alone cannot be enucleated.

Before we discuss the operative measures it will be well, to prove the justification of an operation at all, to glance momentarily at some of the palliative methods. Very many physicians do not consider the extirpation of myoma a necessary operation in any case; on the other hand, the majority of these palliative measures are minor operative procedures, and should be so considered by every one employing them. The most prominent is galvanism as applied and brought to a scientific and accurate application by Georges Apostoli and our colleague, Dr. Engelmann. The clinical literature¹ on this subject has grown wonderfully, and it is far too voluminous to allow here even a reference to the authors. My own experience does not

¹ A valuable contribution on the action of the current is contributed by Gustav Klein, *Zeitschrift für Geburtsh. und Gynäk.*, Bd. xix., page 174.

coincide with that of very many writers. I have been unable to diminish the size of the tumor in any case, though in a number of instances the symptoms caused by the growth have been relieved—that is, the pain and hemorrhage; in others, again, the treatment not only was negative, but the patients gradually became worse. Yet I will say that in an ordinary interstitial myoma, if suitable for the treatment, I would never sanction operation until a trial has been made, say, of at least twenty or thirty applications of the current, to ascertain whether or not we can benefit the patient without resorting to a more radical measure. We must, however, not forget the danger, especially in soft myomata, of producing suppuration in the tumor by the action of the current. Twice I have had an opportunity to observe this in my own practice, and have seen it three times in the practice of others. For submucous myomata and subperitoneal tumors electricity is useless.

Curetting, with intra-uterine applications, so as to destroy the hyperplastic mucosa, is also sufficient to relieve the bleeding and pains in a certain number of cases, but it is impossible for us to pass a curette into the uterine cavity in all such patients. Some cases have also been reported where this treatment brought about serious results—namely, suppuration of the tumor.

The ergot treatment is another therapeutic measure which has been crowned with satisfactory results in isolated instances. We have, however, a certain number of patients, a minor proportion of those afflicted with this neoplasm, to whom no relief can be given except by operation.

The necessity of a capital operation (considering nearly all other forms of treatment as minor operations) also depends very much upon the social position of the patient. We will take two parallel cases, such as we not infrequently meet in practice: An interstitial myoma, about the size of a new-born infant's head, in the posterior wall of the uterus. The patients are each 40 years old, one a woman in good circumstances, the other the wife of a laborer. The former can be treated at her home or in the physician's office two or three times a week by means of electricity or some other method, or may receive no treatment at all: *but she can enjoy rest and all the comforts which money will afford.* The other woman, who is compelled to do all of her own housework and consequently has no time to rest and take life easy, presents to us an entirely different pic-

ture. She cannot afford to spend months and years as an invalid. In such case it is essential that something else be done, and that something else is, after we have failed with the ordinary and less hazardous means of treatment, a capital operation. The question arises, What shall the operation be? Oöphorectomy!

In many cases the rapid bringing about of the menopause is sufficient; in other cases the tumor will continue or even commence to grow after this period, or it may die owing to loss of vitality, or softening and suppuration may occur, all of which we must take into consideration; besides, the removal of the appendages does not stop the bleeding in all cases, notably not in submucous tumors. If we have a patient upon whom it is decided to operate, the age of the woman, the consistence of the tumor, its size, whether it produces pressure symptoms, etc., must necessarily guide us as to whether we are justified in merely removing the appendages. The possible malignant degeneration of the endometrium must also be borne in mind. The great majority of patients of course do not require an operation. I have been able to observe, for a greater or less period of time, three hundred and twenty-one patients afflicted with myoma of the uterus sufficient to produce such symptoms as to compel them to seek advice, their ages varying between 18 and 66 years; the majority were between 30 and 40 years. Ninety-six patients who were seen only once or twice, and those in whom the myoma was discovered only incidentally, were not enumerated as "observation cases." Of this entire number it appears that in only fifty-seven patients was operation ultimately advised by me = 14.45 + per cent.

In a limited number of cases the tumor can be enucleated per vaginam—that is, if the tumor is submucous and is enucleable from its bed, if the portio is sufficiently dilated or dilatable to reach it, and if the size of the tumor is not too great. The smaller submucous myomata, which by efforts of the uterus have already been partly expelled, are most favorable for this procedure. If a myomatous uterus is small enough to be removed per vaginam *in toto*, and the myomata cause severe symptoms, and no method of treatment will relieve the patient except an operation, then vaginal hysterectomy becomes the operation of choice.

Pedunculated subperitoneal myomata need no discussion; they

are the easiest of all to manage, and after removing such a neoplasm a functioning organ is left. The same object should be sought, however, when removing interstitial myomata; and here the pioneer work of A. Martin cannot be appreciated too highly. Among numerous other myoma operations I have seen Martin enucleate a myoma involving the uterus to such a degree that a considerable portion of the body of this organ was necessarily removed. He had, in fact, after removing the neoplasm, to build up a uterus. The patient recovered without a bad symptom. Admitting that after such operation the organ is crippled, and that the chances are nineteen out of twenty, or even more, that such patient will not conceive and give birth to a child at term, yet it is a source of intense satisfaction to the patient that she is still a woman in the full sense of the word.

It should always be our endeavor to remove the neoplasm only by enucleation, which, if the uterine cavity is not invaded during the operation, gives a very favorable prognosis. Split the capsule, enucleate the tumor, and sew up the bed with buried catgut sutures under the requisite antiseptic precautions. Sometimes two or more fibroids can be removed from the organ in that way. Great care should be taken to have all bleeding stopped by the sutures, and to insure this no method of suture is better than the continuous catgut suture used in tiers.

Constricting the cervix with a rubber ligature while enucleating and sewing is, in my opinion, not to be favored, for the same reasons that it is condemned by many operators in Cesarean section. If the uterine cavity has been invaded by the operation, one cannot be too careful in the disinfection and in the placing of the sutures, so as to prevent infection from this source.

Another class of patients still remains to be dealt with—namely, those in whom it is necessary to remove the tumor, plus the body of the uterus, in order to give the desired relief. For this numerous methods of procedure have been devised; the best results as to recovery from operation, from the statistics of all cases operated upon, according to my researches, being achieved by the extraperitoneal treatment of the stump, the uterus having been amputated at the cervix. The intraperitoneal method, however, has gained very many friends, and a war between intra- and extraperitoneal treatment of the stump has been waged a long time. Personally I favor the intraperi-

toneal method, if a choice is to be taken between the two. Byford, of Chicago, introduced the vaginal fixation of the stump, which no doubt has great merit. A. Palmer Dudley, of New York, has in some cases done what he terms intra-extraperitoneal treatment, but I am unable to find wherein it differs materially from the recognized intraperitoneal treatment according to Schröder's method. Why, however, should I discuss the merits between intra- and extraperitoneal treatment, when Martin has placed in our hands an operation which I think is ideal? Independently of Martin's work the entire uterus was removed for myoma by Dr. L. A. Stimson, of New York, in November, 1888. Stimson's method differs from Martin's, in that his aim and main point is to ligate the uterine arteries *first*—which is certainly more surgical—so as to avoid using ligatures *en masse*. For the details I refer to his article on "Some Modifications in the Technique of Abdominal Surgery Limiting the Use of the Ligature *en masse*" in the *Medical News* for July 27th, 1889. Stimson lost two out of about seven complete abdominal hysterectomies for myoma.

An excellent method of operation was brought to the notice of the Society at its last meeting by our member, Dr. Baer: it is an intraperitoneal treatment of the stump, and the results which our colleague attained with his method are so brilliant, and the technique is so rational, that all who share the opinion which Baer has of *complete* extirpation should give his method a trial, and no doubt it will convince many, if not all, in its favor.

Of all intraperitoneal methods this one appeals most strongly to me; and if it should prove, after experience, that the immediate results are equal to total extirpation, then I have no doubt as to its universal adoption.

We have, however, not yet reached the end of our, we may well say, experimental state in fibro-myomata operations. The mortality is still far too great to satisfy us, but we are on the road to bring it to perfection.

From a communication received it appears that Dr. Mary A. Dixon Jones, of Brooklyn, performed the first complete extirpation of the uterus for myoma, to avoid the disagreeable features of either extra- or intraperitoneal treatment of the pedicle, on February 16th, 1888, publishing the case in the *New York Medical Journal*, September 1st, 1888. The patient, who had a

multiple fibroid weighing thirteen and one-half pounds, made an uneventful recovery. The combined operation was done. Drs. Polk, Krug, and Edebohls, of New York, are also ardent advocates of this procedure, and their results are encouraging. Dr. Joseph Eastman, of Indianapolis, has the largest statistics of any American operator—seventy-nine complete operations with but eight deaths = only 10.1+ per cent mortality. This comprises his list from the date of his first operation, in August, 1889, until August, 1892, only (private communication). Eastman still prefers total extirpation, which, with the ability to do any kind of abdominal work, and his experience, means unbiassed commendation, based on large experience.

The following comprises the list of cases in my own experience to January 1st, 1893.

CASE I.—Mrs. R. Z., æt. 34 years. Menstruation began at 14. When 16 years old she was married, and two years subsequently gave birth to one child. She has never been pregnant since, and has always been in good health until twelve years ago, when her menses, which had been quite regular and in moderate amount, the flow lasting from three to four days, gradually became more profuse. During the past three years the flow has also been irregular, the intermission being sometimes only ten days. She is never entirely free from pain, but during the period it is much increased in severity, so that it is necessary for her to remain in bed, and a part of the time to be under the influence of narcotics.

On examination a nodulated tumor was found, extending two inches above the umbilicus, the nodules varying in size from a walnut to a hen's egg. On vaginal examination it was found that the cervix was crowded upward and forward, the tumor being in the posterior wall of the uterus. The patient had been under nearly constant treatment for the previous two and one-half years, and naturally demanded that something more radical be done. I decided on doing a hysterectomy, and on May 23d, 1889, the abdominal section was made. A very large incision was necessary to dislodge the tumor from the abdominal cavity. The large, multiple myo-fibroma could not have been enucleated, and so I decided to remove the uterus entirely. Accordingly a rubber ligature was placed below the tumors on the cervix, having the adnexa also above the ligature; the uterus was amputated above the ligature, and the abdominal wound

closed. After this the patient was put in position for vaginal hysterectomy, and the vagina, external genitals, etc., being in proper antiseptic condition, the cervix was grasped by a volsella forceps and the bladder separated anteriorly; the cul-de-sac was also opened posteriorly, and two forceps on either side secured the broad ligaments. A few hemostatic forceps were necessary to secure some other smaller bleeding points. After the cervix had been cut out a strip of iodoform gauze was introduced for drainage. Time of operation, from beginning until the patient was ready to go off the table, forty minutes. In twenty-four hours the gauze and all the forceps were removed and fresh gauze again introduced. The average temperature was 99° F. in the axilla for the first four days, the highest being reached on the third day— 100.6° F. After the fourth day the temperature remained normal. The vaginal wound was completely closed on the tenth day. On the nineteenth day after the operation the patient was able to be up, and in four weeks from the day of operation she attended to all her household duties with comfort. Only occasionally does the scar trouble her (severe lancinating pains). She is a perfectly well woman, and has not been ill since the removal of the fibro-myomatous uterus.

CASE II.—H. McC., *æt.* 39 years, presented herself with a tumor reaching nearly to the umbilicus. She had undergone treatment for a long time without benefit, and was almost a wreck, suffering agonizing pain constantly and bleeding profusely about half the time. For a long time she had taken morphia to relieve her pain. The fibroid was interstitial and filled the pelvis, the intense pain being caused by the pressure. Taking everything into consideration, I deemed it best to lose no more time with other methods of treatment, especially as the cervico-uterine canal was so tortuous that an electrode could not be introduced. On July 15th, 1889, the fibromatous uterus was removed as in the previous case. The patient had no acceleration of pulse or temperature, but began on the second day to show symptoms of acute mania; probably the sudden withdrawal of morphia, for which she constantly craved, made this condition much worse. She became so unmanageable that we could not keep her in the hospital and were compelled to transfer her to Bellevue Hospital on the seventh day. The abdominal and vaginal wounds were in excellent condition. I learned subsequently that she died in Bellevue Hospital.

CASE III.—F. B., æt. 32 years, never pregnant. At the age of 16 years she began to menstruate, at 23 she was married, and a few months later her menstruation began to be more profuse and painful. When 25 years old she began to undergo various kinds of treatment for the uterine fibroid which was diagnosed. In the autumn of 1888 the patient came under my care. The abdomen was filled with a tumor reaching nearly to the umbilicus. Per vaginam it was diagnosed to involve the cervix; its consistence was that usual to a soft myoma. The patient was treated with electricity, receiving sixty applications, without the slightest amelioration of the symptoms, except that the bleeding was very slightly lessened. Operation was now proposed and accepted. On October 20th, 1889, celiotomy was done, and, finding enucleation of the tumor impracticable, the uterus was removed by the combined operation, the steps being similar to those in the previous case, after first tying off the adnexa. The bladder attachment was, however, quite extensive, the tumor involving much of the anterior wall of the uterus. This patient also made an uninterrupted recovery. The highest temperature was reached on the third day— 100.2° F. in the axilla. At the end of the third week she left her bed.

CASE IV.—L. Z., æt. 31 years, married nine years; never pregnant. Menstruation began at 14; always regular until two years ago, when the flow became more profuse and was accompanied by severe pain; both pain and bleeding increased, and treatment, which was commenced a little more than a year ago, was negative. The tumor extended a hand's breadth above the symphysis, and was considered to be of the so-called mixed variety. A double salpingo-oöphoritis with perimetritis were complicating features. On October 24th, 1889, abdominal panhysterectomy was performed. The highest temperature during convalescence was 100.6° F., pulse 108. The patient was up on the twenty-fifth day, and has since been well.

CASE V.—M. B., æt. 22 years, single. Ill for four years, complaining of pain in the back and lower part of abdomen which has been getting worse steadily. The patient is incapacitated from earning a livelihood as seamstress, especially as she was in much greater agony during the flow, which had lately continued from eight to twelve days. Constipation was extreme; a voluntary movement could never be obtained. The tumor, although not very large, filled out the small pelvis com-

pletely, which accounts for the negative result from all treatment which the patient received from her attending physician. On November 3d, 1889, abdominal total extirpation was done. With the exception of a small mural abscess, the patient made an uneventful recovery.

CASE VI.—R. G., æt. 34 years, married fourteen years: one child thirteen years previous. Symptoms were meno- and metrorrhagia; severe abdominal and lumbar pains, constipation, and frequent micturition. Treatment had been negative. Tumor the size of a large cocoanut. On the left side another fibroid developed between the folds of the broad ligament.

The operation, which took place on November 10th, 1889, was difficult, owing to rigidity of the pelvic floor, and for this reason, after the intraligamentous tumor was freed, a ligature was placed around the cervix and the uterus with myomata was amputated. The cervix was removed per vaginam. The folds of the broad ligament were sewed with a continuous catgut suture. Death on the fourth day from pneumonia complicating chronic nephritis, which latter had already existed prior to operation.

CASE VII.—M. F., æt. 40 years, married seventeen years: never pregnant. Nine years pain in abdomen and back; heavy weight in the abdomen; menstruation profuse; fibro-myoma extending above umbilicus. Total abdominal hysterectomy November 30th, 1889. Recovery unusually smooth. The temperature never above 100.2° , pulse 104. Sat up on the twenty-first day.

CASE VIII.—M. D., æt. 33 years, married four years: one child twelve years ago. During the past seven years the patient has had meno- and metrorrhagia, and intense abdominal and lumbar pains, which were increased on physical exertion. Treatment had not afforded her relief. A fibro-myoma with salpingitis duplex was diagnosed. The salpingitis was considered to be suppurative, and it was thought that the electricity, which had been used for several months, could be held responsible for that condition to some extent, because the patient's pains in the ovarian regions had been increasing in severity under its use. Celio-vaginal hysterectomy on December 1st, 1889. The recovery was perfect in every respect, and the patient resumed her household duties four weeks subsequent to operation.

CASE IX.—L. B., æt. 29 years, married eight years; never pregnant. Has been ill for five years and is gradually getting worse. Her chief complaint is backache and very obstinate constipation; the pains radiate down into the thighs. Menstruation is irregular and profuse. The myoma which is diagnosed fills out the true pelvis, and, former treatment not having been crowned by any marked success, the patient is operated upon by the combined (celio-vaginal) method on December 5th, 1889. The convalescence is interrupted only by an acute bronchial catarrh, to be ascribed to the anæsthetic.

CASE X.—R. G., æt. 38 years, married fourteen years; three children, normal labors, the last nine years ago. For three years the patient had been complaining of menorrhagia with dysmenorrhea and pain in the pelvis. During one year a tumor had been noticed in the lower abdomen, which gradually increased in size, so that now it reached nearly to the umbilicus. She had lately been unable to attend to her household duties, owing to the increase of pain. On December 29th the abdomen was opened and the entire myomatous uterus removed from above. The operation was readily accomplished in this instance, and required only forty minutes for its completion. Recovery uninterrupted. The highest temperature was reached on the fourth day— 101° , with pulse 116. She left the bed on the twenty-third day.

CASE XI.—E. S., æt. 35 years, married fifteen years; never pregnant. The family history is good. Menstruation began at 16 years and was regular until 20 years. She had no dysmenorrhea until then. Since that age the periods became more profuse, lasting from four to ten days, and the dysmenorrhea became more intense from year to year. During the past five years constant pain existed in the sacral region, the left ovarian region, and, on walking, also in the left thigh. Gynecological treatment was then commenced, which was negative in result. During the two years prior to my seeing the patient constipation had become very obstinate, micturition frequent, and occasionally vesical tenesmus. The abdomen had also increased much in size during the previous few months. Examination of the much emaciated and exsanguinated patient (the bleeding being present now about half of the month) revealed an irregular tumor extending above the umbilicus. Per vaginam it was found that the left half of the pelvis was filled with a tumor,

and anteriorly, crowded slightly at the right, was what was considered to be the uterus. The cervix was large and hard. The patient had received eight months' treatment with galvanism at the hands of an electro-therapist of this city, without any benefit as far as the pain was concerned; on the contrary, it steadily increased in severity, although the bleeding had diminished very materially. She had also been treated with numerous hypodermic injections of ergotin, and internally with *hydrastis canadensis*. On January 3d, 1890, the abdomen was opened. The intestines were moderately adherent at the fundus of the tumor, and firmly to the posterior surface of the left broad ligament; the bladder was spread over an extensive area of the tumor. The tubes and ovaries were with considerable difficulty tied off at either side: the tubes were both slightly distended with sero-purulent fluid and their walls much thickened—double interstitial salpingitis. The ovaries had undergone small cystic degeneration. The intestinal adhesions to the broad ligament were so dense that only so much as was absolutely necessary to split the ligament in order to enucleate the tumor from its bed was dissected off. The bleeding from the raw surfaces was sufficiently profuse to necessitate continuous catgut suturing. I had taken care to take off the ligament peritoneum in my dissection, so as to avoid the danger of injuring the gut in any way. The bleeding from the interior of the broad ligament, after splitting it and beginning with the enucleation of the tumor, was very profuse until I was able to tie the nutrient arteries. After great difficulty the intraligamentous tumor was enucleated, and to stop the oozing from the bed iodoform gauze was at once tightly packed into the cavity, and counterpressure made from the vagina by another tightly packed iodoform-gauze tampon. On the opposite side ligatures were also placed and the broad ligament cut, after placing forceps on the uterine side of the ligament. Next the bladder was dissected off sufficiently to permit the placing of a ligature below the tumor, first tying with ligatures to avoid all bleeding, and then the myomatous uterus cut off above the elastic ligature. The intraperitoneal gauze pressure was continued a few minutes longer, and the gauze removed; there still being some bleeding, a continuous suture was placed so as to envelop the folds of the ligament and bring the raw surfaces into apposition, the remainder of intestinal adhesions having been dis-

posed of. Now the vaginal gauze tampon was removed, and, guided by the finger of an assistant, placed directly behind the portio; the cul-de-sac was opened with the scalpel, keeping close to the column. A bullet forceps was now placed in the slit thus made, to act as a guide, the cervix pulled up as much as possible by a volsella, and the cervix cut out, first ligating with catgut before cutting; so that, with the exception of the bleeding from the bed from which the intraligamentous tumor was enucleated, the operation was practically bloodless. The opening in the vagina was now closed, because I could see no necessity for drainage, all oozing having been controlled. Abdominal wound closed with two rows of sutures. Time of operation, one and three-quarter hours. The pulse never exceeded 110 beats and the temperature did not go above 100° F. In three weeks the patient left her bed.

CASE XII.—F. K., æt. 41 years, married twenty-one years; never pregnant. Menstruation began at 13 and was regular until marriage. From then on it became profuse, and during the past seven years irregular, the intervals varying from two to three weeks. The pain in the back and abdomen during the past four years had become quite intense, and was but slightly relieved by treatment. The myoma, about the size of a coconut, was of a doughy feel, showing muscular tissue to be predominant or that it had undergone other changes. On February 9th, 1890, total abdominal hysterectomy was done. The patient's highest temperature was on the second day, 100°, pulse 108. She left her bed on the eighteenth day.

CASE XIII.—J. C., æt. 32 years, married twelve years; no children; one abortion at the third month eleven years previously; meno- and metrorrhagia; abdominal and lumbar pains for nine years. Treatment of various kinds for seven years, with little benefit at times. During the past eight months the pains were much severer. The myoma is of medium size and is complicated with double pyosalpinx. On February 23d, 1890, laparovaginal hysterectomy was done. Perfectly smooth and uneventful recovery, the patient assuming full household duties exactly five weeks after operation.

CASE XIV.—M. D., æt. 30 years, single. Menstruation began at 14 years. The patient had been in good health until three years prior to her consultation with me, which was on August 20th, 1889. She complained of intense pain in the ab-

domen which was nearly constant, and of irregular and profuse hemorrhages. At the time of bleeding, and for one to two days previous to the flow, she was compelled to go to bed on account of the severe suffering, for which her attending physician was obliged to give morphia. On examination the abdomen was found to be filled by a solid tumor, which was smooth and extended up to the umbilicus. Over the ovarian regions there was much sensitiveness. Per vaginam there were masses, corresponding to enlarged tubes and ovaries, which were excessively tender to touch. The diagnosis was interstitial myoma and double salpingo-oöphoritis. She was treated by galvanism. The current, however, could *never* be carried beyond fifty milampères. She gradually grew worse, the pain more intense, and bleeding more profuse. Removal of the appendages was finally decided upon. On May 22d, 1890, the abdomen was opened, when the impossibility of removing the adnexa completely became apparent. The left tube was low down, much distended with blood, and the ovary so adherent that it was more than useless to make further attempts to enucleate it. A worse condition than this was presented on the right side. The uterus was then cut, with the hope of being able to enucleate the tumor. This, too, was useless, as the mixed (interstitial and submucous) tumor would have made it necessary to take away so much uterus that a bringing together of the wound would have failed; besides, she would have had the greatly diseased appendages left. The entire organ was finally removed from above, after much difficulty owing to the extreme rigidity of the pelvic floor. The bladder was wounded during operation. The operation lasted very long—two and a quarter hours—and the patient did not fully rally from the shock. She died on the second day.

CASE XV.—E. G., æt. 32 years, married ten years; never pregnant. Menstruation began at 13 years, and had always been profuse and more or less painful, but regular. During the preceding five years the flow had from year to year increased in quantity, lasting now eight to fourteen days; blood frequently in clots, and the pain very severe during the entire flow, beginning one to two days previously. Constipation, frequent micturition, and occasionally vesical tenesmus. She also suffered from pain in the region of both sciatic nerves. On physical exertion there were cardiac palpitation and general lassitude. Examination revealed a tumor extending two fingers' breadth

above the umbilicus, hard, smooth, and symmetrical. The cervix was small. Diagnosis, interstitial myoma. In October, 1889, after splitting the cervix, she was curetted and an application of pure carbolic acid made to the interior, and the uterine cavity packed with iodoform gauze to check the hemorrhage. One week later galvanism was commenced, and the patient was treated regularly twice to three times per week until the latter part of April, 1890, without any benefit as to pain or bleeding. On May 25th, 1890, laparotomy was done and the adnexa readily removed. The broad ligaments were sutured down to the base of the tumor and cut, a rubber ligature applied, and the tumor amputated; the finger of an assistant was placed firmly against the posterior surface of the cervix, the vagina was pierced, and a long sponge-holding forceps introduced through the slit per vaginam. The cervix, after ligating successively and cutting, was now excised; the bladder was, after cutting a little above its upper attachment to the cervix, dissected off with the finger, as in vaginal hysterectomy, down to the vagina, which was cut with the knife, the cervix being well drawn up with a volsella. No ligatures were applied anteriorly. An iodoform gauze drain was placed in the cavity so as to introduce it into the vagina, and the abdomen closed. Time, fifty minutes. On the second day the gauze was removed and an iodoform gauze vaginal tampon substituted, which was removed on the third day. The highest temperature was 99° F., pulse 100. The patient left her bed on the twentieth day, and resumed her household duties with the beginning of the fifth week.

CASE XVI.—A. P., æt. 32 years, married thirteen years; never pregnant. Three years before the patient began to have meno- and metrorrhagia, and noticed the presence of an abdominal tumor. The bleeding remained profuse, despite any treatment instituted, so that at the time the operation was done—viz., on October 4th, 1891—she was extremely anemic and had a very feeble and rapid pulse. It was a large, soft myoma, and the case seemed favorable for the complete removal of the organ. The patient did not fully recover from the shock of the operation, which lasted one hour and fifteen minutes and was done per abdomen alone.

CASE XVII.—J. S., æt. 40 years, married; never pregnant. Had a large myoma in the anterior uterine wall. For five years she had suffered from intense pain in the abdomen, profuse and

painful hemorrhages. She was very anemic from the loss of blood. The pain was largely due to double pyosalpinx and a small intraligamentous cystoma. On January 30th, 1892, complete extirpation of the uterus was done by the abdominal method. Death resulted at the beginning of the third day from extreme anemia, no evidence of peritonitis or sepsis being shown either before or after death.

CASE XVIII.—C. J., æt. 42 years, married; one abortion; no children. The abdominal tumor was observed two years previously, and gradually increased in size. The tumor involved the cervix, and caused intense pressure symptoms in addition to the bleeding. On May 16th, 1892, removal of the myomatous uterus was done. With the patient in lithotomy position, I first ligated and cut the base of the parametria, then opened the cul-de-sac, and anteriorly also separated the bladder as far as possible, hoping thereby to be enabled to finish the operation from above without so much difficulty, as the pelvic floor was very rigid. Death occurred from shock a few hours subsequent to operation.

CASE XIX.—B. W., æt. 36 years, single. Interstitial submucous myoma. Had been bleeding profusely for two years, which could not be controlled by any method of treatment. On May 28th, 1892, the myomatous uterus, reaching nearly to the umbilicus, was extirpated from above, after first doing the preliminary work as in the previous case. The operation was perfectly smooth and promised a good result, but, as in a previous case, the patient died from the extreme anemia within thirty-six hours after operation.

CASE XX.—M. McD., æt. 54 years, married twenty-eight years. Had seven children and two abortions; the latter were respectively at three and a half and four months' gestation, cause unknown. All labors were normal, the last one twenty years ago. Nine years ago the patient first noticed a tumor in the lower part of the abdomen, about which she consulted a physician. Inasmuch as she had had no menstrual disturbances of consequence, and only a heavy sensation in the lower part of the abdomen, she was advised to let the tumor, which was diagnosed as a fibroid, alone. At 51 years the menopause took place, and the patient felt quite comfortable until one year ago, when the growth in the abdomen commenced to give her considerable discomfort by causing pain in the back and abdomen.

During the past two months considerable bleeding again made its appearance, and the tumor also had increased in size. Examination showed a well-marked tumor extending to within three fingers' breadth of the umbilicus, symmetrical, and hard in consistence. The perineum was lacerated nearly to the sphincter, and a descensus of the vagina was present. The cervix was large, lacerated on both sides, and patulous. An examination of the scrapings obtained with a sharp curette showed the utricular glands at some places partly destroyed and nests of epithelia filling the gaps, with only a moderate amount of connective tissue.

Diagnosis, myo-fibroma with carcinoma of the endometrium. Operation July 1st, 1892. After packing the uterine cavity with sublimate gauze and closing the os externum with two silk sutures, the vaginal insertion was cut anterior and the bladder separated as high up as it could be done from below; next the cul-de-sac was opened and the base of the parametria ligated and cut; next the vagina was packed with iodoform gauze. The abdominal section was made to within an inch of the umbilicus, the tumor dislodged, the adnexa removed, and the tying off of the broad ligaments proceeded with. The rest of the bladder was readily separated, after first slightly distending it with boric-acid solution to show its outlines. After ligating, the cervix was excised without difficulty. The edges of the vaginal wound were brought together and the abdomen closed. After forty-eight hours there was some elevation of temperature to 101.8° in the axilla and considerable tympanites. Six seidlitz powders, given at intervals of half an hour, brought about copious watery stools, and the temperature went down, tympanites disappeared, and the patient made a good recovery.

CASE XXI.—L. F., æt. 31 years, married five years; never pregnant. Had the usual train of symptoms accompanying a fibro-myoma which produces pressure; one tumor, although not very large, reaching to two fingers' breadth below the umbilicus, and being in the anterior wall of the uterus. Another tumor, however, had developed between the folds of the left broad ligament, and this latter gave rise to the serious symptoms.

On October 24th, 1892, the operation was performed. It was of unusual difficulty, despite the fact that the base of the parametria had already been ligated and cut. The intraligamen-

tous tumor was enucleated with the utmost difficulty. Abdominal and pelvic toilet as previously described. The patient developed a mural abscess, which undoubtedly was due to the silk, as several abdominal sections done about the same time, in which silk from the same lot was used, also got stitch-hole abscesses. Aside from this occurrence, the recovery was ideal. The highest temperature until the fourth day was 99° . From this time, of course, the temperature increased somewhat; it was, however, due to the condition referred to.

Technique of Operation.—The patient is prepared in the ordinary way with which all experienced operators are familiar—the abdomen, the vagina, external genitals, etc., as for a vaginal hysterectomy—and then the operation is commenced from below, if the case is suitable for this, by ligating the parametria as high up as possible, in the same manner as in vaginal hysterectomy for cancer,¹ except that we do not ligate far away from the cervix. The vagina is likewise detached anteriorly and posteriorly from the cervix, and the bladder detached as far as can be done without unusual exertion, the cul-de-sac of Douglas being opened first or last, whichever is most convenient. No rule can be laid down; the operator must use his judgment as to which step should be taken first. The object to be attained is to free the lower segment of the cervix, then the operation from above is materially simplified; this becomes especially apparent in cases where the pelvic floor is rigid. Now the vagina is packed with iodoform gauze, a strip of which protrudes into the peritoneal cavity by way of the cul-de-sac.

Next the abdominal section is made in the usual way, and the rest of the uterine attachments are tied off in sections and cut. To avoid injury of the bladder, the viscus, just prior to its detachment above, especially if it is spread over the tumor itself, should be partly distended with a mild boric acid solution to show such attachment; then, about half an inch above the attachment, whether it is only at the utero-vesical fold or to the tumor, an incision is made and the remainder of the bladder is separated.

After excision of the myomatous uterus the vagina and floor of the pelvis are *closed*: all that can be seen from above is the continuous catgut suture with which the pelvic peritoneum has been closed, and a few small pedicles from the upper parts of

¹ See AMERICAN JOURNAL OF OBSTETRICS, October, 1892.

the broad ligaments, the adnexa, it is self-understood, having been ligated off at the beginning of the abdominal work, or as soon as was practicable. The abdominal wound can now be closed.

In large tumors which do not crowd into the pelvis, but, on the contrary, pull the cervix and vagina high up toward the upper part of the pelvic cavity, so that the portio can hardly be reached by the examining finger, this technique is out of question and the whole work must be done from above. But in this latter class the operation from above only, offers no particular difficulty; it is, in fact, a comparatively easy operation, decidedly easier than most operations for the removal of suppurating adnexa. The parametrial stumps are secured in the same manner by our successive ligation from above. The floor of the pelvis is closed off in precisely the same way; the only difference is, the cul-de-sac of Douglas is opened per celiotomy wound, which, however, may also become more expedient in the cases in which I advise the work to be done from below. It may be that in some such cases the opening cannot be readily made into the peritoneal cavity after the vaginal mucosa has been cut; then I would never exert myself endeavoring to accomplish it, as the vagina has already been separated *all around* the cervix. The peritoneum is easily opened subsequently. I have, however, always succeeded without difficulty in opening the cul-de-sac from below.

It must be obvious that in the cases in which we have the pelvic floor rigid—which is more apt to be when we have the class of tumors which crowd into the pelvis and produce pressure symptoms—and the tumors developed between the broad-ligament folds, not only time but much tedious and difficult work is saved if the work is commenced as I have described. The only requisite for operating in this way is practical familiarity with vaginal hysterectomy. My idea of clamps and ligatures with an open wound is the same as it was expressed in the article referred to in vaginal hysterectomy. I should not employ clamps, unless time was an important element in the respective case. The observation of the position and dimensions of the neoplasm in relation to rigidity of the pelvic floor I have made in nearly every case. In the first few cases of hysterectomy I thought the difficulties were only incidental concomitants with the respective case, but repeated observation has

taught me differently. More especially does my observation prove to be correct in the smaller tumors. I beg, therefore, to formulate the following rule as an indication for my technique: If the tumor is of small size (not larger than a newborn infant's head), crowding down into the true pelvis; or if there is an intraligamentous tumor; if the portio vaginalis, in consequence of such crowding from above, is low in the vagina, so that it is easily palpated, we have reason to believe that the pelvic floor is rigid; and if the vagina is sufficiently spacious to work in, the operation can be done as indicated with greater advantage. During convalescence the patients operated upon according to the technique which I advise will of course have a vaginal discharge, more or less profuse and usually more or less offensive, which is due to the sloughing off of the parametrial stumps constricted by sutures in the vagina. In addition, then, to the vaginal douches, if such are used, we will do well to call into use the application of occlusion pads. An occlusion pad made of wood wool, and sold by the Jaros Hygienic Underwear Company, of New York, is excellent. It answers the purpose for which it is intended—viz., to absorb discharges from the generative organs—better than any other in the market, and it is cheap. To deviate from the subject momentarily, let me say that these pads are also admirable for use after parturition and during menstruation. They can be readily sterilized in any household by wrapping them in heavy paper, or putting them in a clean tin box, and putting the package into the oven. Any one who has once used an occlusion pad for these purposes can appreciate its value.

The advantages of the *complete* removal of the uterus are no doubt apparent to many operators. Although I cannot bring myself to the rule to always do this operation, especially after the experience which I have had in very anemic patients, yet, when the condition of the patient permits a long operation, it is my choice. Occasionally we have a patient whose physical condition is very poor, she has become anemic from loss of blood, the heart in consequence has probably suffered more or less. In such cases I will still do suprapubic hysterectomy, because that is generally a rapid operation; opening the abdomen, dislodging the tumor, and putting the wire around the cervix require but a short time; to amputate the uterus, sewing the peritoneum on to the stump below the wire, also takes up but a very short

time, and then the abdomen can be rapidly closed. However, it is only in extreme cases in which I would yet do an operation by this method, or, for instance, as in a case which I had two weeks ago in a patient æt. 66 years, in which the vaginal canal had become completely occluded.

The method of treating the stump intraperitoneally varies in details with nearly every operator, but the fundamental principle is the same, and if I can make a more rapid operation by one procedure than by another, with equally satisfactory result, that is the method of choice. The method employed by me is very simple and comparatively rapid. Tying with heavy catgut ligatures on either side; next to the myomatous uterus long clamps are placed, cutting between ligature and clamp; at the lower segment of the uterus the peritoneum is cut around and the familiar cup-shaped cavity cut out, including the upper part of the cervical canal; the raw surfaces are then united by a continuous buried catgut suture, as introduced by Schröder, and the broad ligaments are brought into apposition with the stump. From the description it would seem that this procedure would occupy much time: it does not: ordinarily such operation can be completed in three-quarters of an hour. From the above it becomes apparent that the case is not fitted to the operation, but the operation to the case, inasmuch as I also take into consideration, besides the physical condition of the patient, the relation of the myoma to the uterus and in the pelvis. This holds good for tumors of the uterus: but, as Fritsch very correctly stated in his remarks on the subject of operations for myoma before the International Medical Congress in Berlin, we have another variety of myo-fibromata which offers an entirely different aspect, both in regard to the necessity of an operation and the difficulties encountered in such operation, and the prognosis—namely, the tumors developed in the folds of the broad ligaments. In that address Fritsch also remarked that these intraligamentous myomata had a tendency to grow rapidly. This statement, although correct for many cases, is not the rule. I have at the present time three such cases under observation for more than three years, and apparently the tumor has not grown; but I find that such patients suffer at intervals from attacks of perimetritis—such has been my observation in the three cases referred to. These intraligamentous fibromata are decidedly the most difficult cases to manage, especially if they have attained a large size.

The principal reason why I have left off doing suprapubic hysterectomy in cases in which I deem it safe to do another operation is on account of the long convalescence, and the great risk of a hernia at the lower angle of the wound. The time of a patient in moderate circumstances is of great importance, and if we can save her four weeks, besides the greater risk of a hernia, it should be appreciated. And, in addition, the danger of infection from the stump is a considerable item; the latter factor, in addition to hemorrhage, is the feature against the intraperitoneal treatment of the pedicle. In opening the cul-de-sac in complete hysterectomy entirely from above we should endeavor to make the incision high, close to the cervix, so as to facilitate the ligation around the cervix. A great difficulty is presented when the pelvic floor is rigid, and it is for this class of cases that I advise to begin per vaginam; but if the operator does not feel inclined to do so, he will still find it to greater advantage to amputate above and remove the cervix from below, applying clamps to the parametria. The technique, in short, must be left to the choice of the individual operator. The point is to take away the entire organ. It will also be found of advantage to operate with the patient in pelvic elevation, preferably on a table constructed so that any degree of pelvic elevation can be readily given without loss of time or inconvenience to the operator, which can be done most readily on the table constructed for me by R. Kny & Co., of New York. That the operation is of unusual merit must already be conceded by the fact that it is rapidly gaining in favor with all operators who have done it several times. The only objection which seems to be present is the long time frequently required to complete the operation; yet the time can be much shortened, according to the dexterity of the operator in using the needle. A. Martin's time, for instance, for thirty operations published, was only forty-six minutes. In one case he only required nineteen minutes. One of the other objections that have been offered is that the pelvic floor is too much weakened by the complete operation. This cannot hold good in practice, as is shown by the very large number of vaginal hysterectomies already done without ill effects to the pelvic floor. This is especially proven by the patients upon whom I have performed hysterectomy for cancer. They usually leave their bed on the fourth day, and attend to their usual avocations *within* two weeks.

Another point to which I beg to call attention is that nearly all operators speak of the good drainage procured by total extirpation, and one of Dr. Baer's objections to complete hysterectomy is "the necessity of drainage." I too have used drainage with iodoform gauze in the majority of my cases, the same as I formerly did in vaginal hysterectomy; but the fact that no drainage is ordinarily required is an important argument in favor of the operation. I have lately abandoned it, in the same way that I have cast aside gauze or any other drainage in vaginal hysterectomy for cancer. *We do not require it*, if the operation has been neatly and aseptically done. That I have lost several patients by the method of operating is certainly not due to the non-drainage. The autopsy showed not the slightest evidence of sepsis. In my fourteenth case only, may a suspicion of sepsis be had, owing to the length of time that elapsed between operation and death, and also that no autopsy could be obtained to ascertain more definitely what the condition was.

Permit me also to repeat that nothing but catgut is used for anything during the operation, except in the closure of the abdominal wound.

An additional fact which must be taken into consideration is the cause of death, when it occurs. The most prominent cause of death either by the intra- or extraperitoneal treatment of the stump is septicemia. This cause is nearly certain to be eliminated by complete hysterectomy, if the operator is careful in asepsis. In intraperitoneal treatment secondary hemorrhage plays an important rôle in causing death. It has been proven in practice that this need not be feared if the ligatures are properly placed in complete hysterectomy. The main cause of death in complete hysterectomy is shock or extreme anemia, and for that reason I have, as previously stated, not bid adieu invariably to the extraperitoneal treatment. In four *successive* cases in which I risked this cause I have had reason for regret, and shall make no more attempts to do a complete operation when the patient is so much reduced from previous loss of blood.

INTERNAL MIGRATION OF THE OVUM; WITH REPORT OF A
CASE OF REPEATED ECTOPIC GESTATION POSSIBLY
SUPPORTING THE THEORY.¹

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(With four illustrations.)

“INNERE Ueberwanderung des Eies” is an expression which it is difficult to render perfectly into English. It signifies, as you know, the supposed migration of the impregnated ovum from the tube in which impregnation occurred into the uterine cavity and thence into the opposite tube, in which it remains and develops, with the usual results of ectopic gestation. It may also be assumed that the ovum is impregnated in the uterus and then enters the opposite tube. This theory, which has been discussed *pro* and *con* by Wyder, Schäffer, and Pestalozza, has been recently considered at length by Veit, who points out the various sources of error in former observations. It is clear that this phenomenon is not capable of being studied experimentally or under physiological conditions, since it is essentially a pathological process, being considered as possible only when the distal end of the tube in which ectopic gestation occurs is positively occluded *before* impregnation takes place. The original observations of Bischoff on rabbits are hardly in point, since they apply to bicornuate uteri, in which the conditions are essentially different from those in the human female. It is evident that this fact is extremely difficult of demonstration and will only be admitted in the face of positive anatomical proof. It is much to be regretted that, with the large number of specimens of ectopic gestation that have been described, little or no attention has been paid to this interesting possibility, it being assumed that the occlusion of the fimbriated end of the tube, when present, always takes place *after* impregnation, as lucidly described by Bland Sutton.

¹ Read at the annual meeting of the American Gynecological Society, May 17th, 1893.

The following case has been carefully studied with especial reference to this theory, which it would appear to sustain to some extent, although it is not claimed that the evidence is conclusive. An additional reason for placing it on record is its extreme rarity, no other exactly similar specimen having been described, so far as I can ascertain.

The following is a history of the case, as obtained partly from the patient herself, and partly from her physicians: Mrs. McK., age 41, a slight but wiry subject, has been married twenty-two years and has had two children, the youngest being 18. She had one early abortion between the two labors, which were normal. Six years after the birth of the second child (*i.e.*, twelve years ago) she missed two periods and had the ordinary symptoms of pregnancy. Soon after skipping the second period she began to have colicky pains and hemorrhage, and thought that she was about to abort. Dr. Beardsley and Dr. Minard, of Brooklyn, who then attended her, inform me that a bimanual examination made at that time revealed a tumor to the right of the uterus and closely adherent to it. They satisfied themselves that the organ was empty. The pains continued at irregular intervals for three months (the patient having frequent fainting spells), accompanied by a chocolate-colored discharge, and during this time she had an attack of pelvic peritonitis. Five months after their disappearance the menses returned. About this time Dr. Minard made a second examination and found the uterus slightly enlarged, with the same tumor, the size of an orange, adherent to its right border and the surrounding parts. She inferred that it was a fibroid. For ten years the tumor remained unchanged and occasioned comparatively little inconvenience.

During the following two years the periods recurred regularly, but were attended with severe colicky pains. Then (according to the patient's statement) she again missed several periods, during which time she had symptoms of pregnancy and another attack of peritonitis. She was examined by several physicians in Philadelphia, who were unable to arrive at a positive diagnosis. The menses reappeared and recurred regularly until September 1st, 1892, when she menstruated for the last time. Throughout this interval of ten years her health was excellent, with the exception of the dysmenorrhea. Soon after the last menstruation she began to have morning sickness and pain in

the breasts, and in October the same colicky pains which she had had twelve years before returned, but without the former hemorrhage. The pains were always initiated by a movement of the bowels, and were so severe that she often fainted. She was confined to her bed at intervals until November 4th, when, as she was taking an enema, she was seized with a sudden "tearing" pain in the lower part of the abdomen, collapsed, and was thought to be dying. Dr. W. E. Beardsley, of Brooklyn, who saw her at this time, diagnosed probable rupture of an ectopic sac. She rallied, but was in such pain that she required large doses of morphine. Two days later she had a similar attack, less severe, from which she soon recovered, so that two days later she was able to take a journey from Brooklyn to my office. On account of her extreme tenderness I was not able to make a satisfactory examination. I found a circumscribed tumor, apparently as large as the fetal head at term, firmly adherent in Douglas' pouch and pushing the uterus forward and to the left. It was semi-solid in consistence and very sensitive. I did not venture to make a positive diagnosis, but could hardly believe that there had been a ruptured ectopic sac, on account of her good general condition (the uterus was small and the breasts presented no characteristic appearances of pregnancy), and advised the patient to enter the hospital for examination under ether. This examination was made on December 7th, my colleague, Dr. Cleveland, being present. Under anesthesia it was easy to make out bony nodules in the tumor, which was supposed to be a dermoid cyst with general adhesions. Abdominal section was performed three days later. On opening the abdomen the pelvic cavity was found to be shut off by the adherent omentum and intestines. On separating these, fluid blood and old clots welled up from Douglas' pouch. Behind the right broad ligament, and adherent to the side of the uterus, was a mass the size of an orange, which, when partly detached and lifted up, was seen to be an unruptured sac without a pedicle. As the hemorrhage was rather free, I at once inserted my hand to the bottom of the pelvis, in order to hastily enucleate the tumor. I encountered a fetus (between three and four months old) floating in the midst of the fluid and coagulated blood. On taking it out and holding it in my hand it made vigorous movements of the arms and legs for at least three or four minutes, which were observed by several spec-

tators. Its umbilical cord was traced to a second sac below, and adherent to, the first; this was quickly freed, brought up into the wound, and the usual pedicle was tied. During this manipulation the first sac ruptured, a bony nodule and a little caseous material escaping into the abdominal cavity. A large raw surface was left within the pelvis, from which free oozing



FIG. 11.—Showing relative positions of the two sacs and fetus before removal. Seen from behind. *a*, old sac, containing mummified fetus; *b*, recent ruptured sac; *c*, four months' fetus with cord leading to recent sac; *d*, cranial bones of mummified fetus; *e, e*, ribs and long bones.

occurred. The posterior fold of the right broad ligament was seen to be intact, showing that neither sac was intraligamentous. The left ovary and tube were rather firmly adherent, but were easily removed. The pelvic cavity was thoroughly

¹ I am indebted to Dr. John Aspell for these beautiful and accurate drawings.

irrigated and was packed with iodoform gauze, a drainage tube was inserted, and the wound was closed in the usual manner. The patient rallied well from the operation, but subsequently developed pneumonia, from which she nearly succumbed. (She passed pseudo-decidual membrane *for the first* time on the second day.) The abdominal wound absolutely refused to heal until after the patient had been placed on specific treatment, when it slowly granulated. During the fourth week a large induration developed at the site of the ruptured sac, and a pelvic abscess was feared; but under persistent treatment with hot water and ichthyol (a drug which I have found especially valuable in cases of pelvic induration following celiotomy) the in-

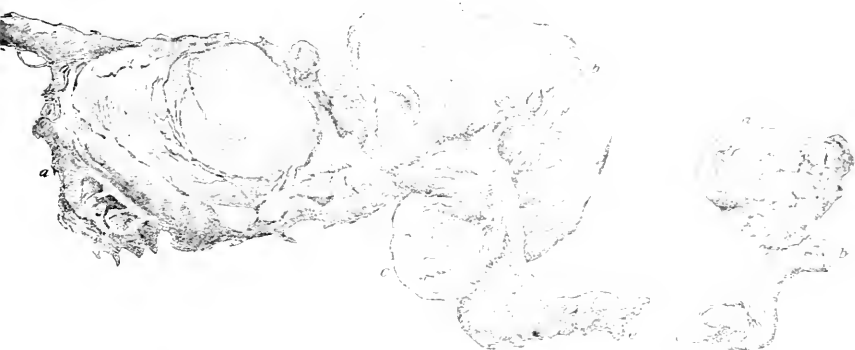


FIG. 2.

FIG. 3.

FIG. 2.—Showing the relation of the Fallopian tube to the two sacs. *a*, old sac; *b*, recent sac; *c*, atrophied ovary; *d*, divided proximal end of tube; *e*, fimbriated extremity of tube.

FIG. 3.—Left tube and ovary. *a*, ovary; *b*, divided proximal end of tube; *c*, fimbriated extremity of tube.

flammation entirely subsided, and the patient was discharged “cured” just six weeks after the operation. I examined her at my office two months later, and found the uterus small and movable, no tenderness in the surrounding tissues, and only a slight induration around the right stump. The abdominal cicatrix was firm. She was in good health, with the exception of such nervous disturbances as are commonly observed after removal of the adnexa.

Judging the specimen to be sufficiently valuable to merit careful study, I sent it to Dr. J. Whitridge Williams, of the Johns Hopkins Hospital, whose report is appended. My warm-

est thanks are due to our talented Fellow for the interest which he has taken in the case. In order to preserve the specimen for your inspection, no microscopical examination has yet been made.

"*Report on Case of Double Tubal Pregnancy.*—The specimens consist of the left tube and ovary, a large, irregular mass derived from the appendages of the right side, and a well-developed fetus of from three to four months. They are all preserved in weak alcohol.

"*Right side.*—It is very difficult to make out exactly the relations existing in the specimen from this side. At its posterior part is seen the right ovary, which measures 3, 1.5, and 0.7 cen-

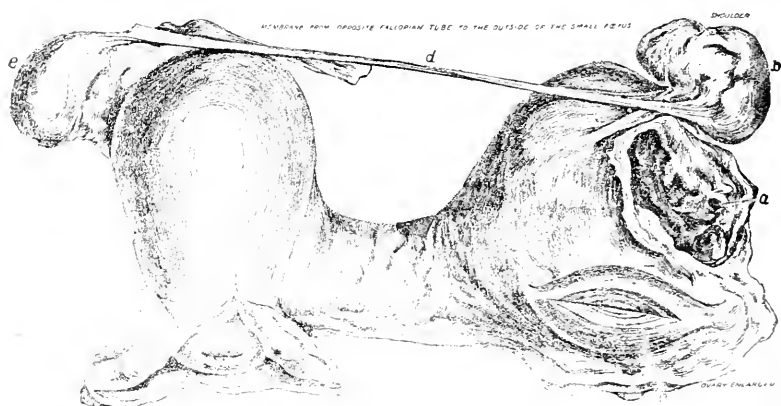


FIG. 4.—Haydon's specimen. *a*, ruptured sac; *b*, old sac containing fetal bones; *c*, ovary, with corpus luteum; *d*, adhesion extending from opposite tube (*e*) to old sac.

timetres in its various diameters. On its surface there are numerous thin adhesions and a number of cicatrices; on section one sees a number of small corpora fibrosa, but absolutely no trace of a fresh corpus luteum. Roughly speaking, the rest of the specimen may be divided into two portions, an internal and external, according to their relation to the uterus. The internal portion is ovoid in shape and measures 7, 4.5, and 3.5 centimetres in its various diameters. Its exterior is of a dull-white color and is covered by more or less thick, organized adhesions. Its surface is somewhat irregular, and beneath it may be seen structures which resemble the hands and feet of a small skeleton, and appear hard and bone-like to the touch. Some of

the larger projections are very hard and apparently correspond to larger bones. Extending almost the entire length of the anterior surface of this ovoid mass is an opening, through which it is seen that the interior of the mass is almost entirely filled with fetal bones of every description, between which is a reddish, soft, very friable material. In the centre of the mass is quite a large cavity, lined by a thin, reddish membrane. All the bones appear to lie outside of the cavity, between it and the wall of the sac. We are unable to state to what this cavity corresponds.

"The walls of the sac which contains the fetus are thin—from one to two millimetres. We would not designate this part of the specimen as a lithopedion, for it presents no signs of calcification of the fetus, the only calcareous portions of the specimen being the fetal bones, which are somewhat softer than usual.

"The external portion of the specimen is likewise more or less ovoid in shape, and measures 6, 5, and 4 centimetres in its various diameters, and sits like a cap upon the lateral end of the mass just described. Its exterior is very irregular and for the most part of a reddish color, and presents many adhesions. At its lateral end may be seen the patent fimbriated extremity of the tube, which can be traced for a short distance. Its extremity is two centimetres in diameter at its widest part. What appears on the exterior to be the tube can be traced over the surface of the ovoid mass containing fetal bones, for a distance of six centimetres from the fimbriated extremity; but its lumen can only be followed for a short distance. The walls of this part of the tube appear to spread over and to be continuous with the surface of the ovoid mass containing the fetal bones. It is thus seen that the two portions of the specimen were originally intimately connected, and that they were separated by a rupture which occurred at the lower part of the specimen, just at the lateral end of the first portion. Through this point of rupture it is seen that the second portion of the specimen is occupied by a cavity, about three centimetres in diameter, lined by a smooth, thin membrane, which corresponds to the amniotic cavity; to one portion of which a portion of umbilical cord, six centimetres long, is attached. On section it is seen that the reddish part is composed of placental tissue. It is evident that it was in this portion of the tube that the fetus which was removed at the operation was developed.

" From the appearance of the specimen it is not necessary to suppose that the first pregnancy ever did rupture into the peritoneal cavity; for the tissues of the lateral part of the tube are seen to be continued directly over the portion of the specimen which contains the first pregnancy, and are only lacking at the uterine end, from which they could have been torn away readily at the time of operation. As no trace of the uterine end of the tube can be found, it is improbable that the spermatozoa penetrated the right tube from the uterus in the formation of the second pregnancy.

" The fetus measures 9 centimetres from breech to vertex and 12 centimetres from vertex to feet, and appears to be from three to four months old.

" *Left side.*—The left tube is 5 centimetres long and 0.3 and 0.7 centimetre at its thinnest and thickest parts. The fimbriated extremity is thickened, but not occluded, and is permeable for a fine sound. On its surface are a number of thin adhesions.

" The left ovary measures 2.5, 2.5, and 1.3 centimetres in its various diameters. On its surface are numerous thin adhesions.

" On section a large corpus luteum is found on the superior border of the ovary, and measures 1.5 by 1 centimetre in diameter; just beneath it an older corpus luteum is found. The ovary also contains a number of corpora fibrosa."

Before discussing the evidence afforded by the specimen in support of the theory of internal migration of the ovum, a brief comparison of the clinical history of the case with the anatomical condition found at the operating table will be of interest. This history is unusually clear and circumstantial. There is no doubt that the older sac was an unruptured extra-uterine pregnancy of twelve years' standing. The symptoms noted at that time were quite characteristic of that condition, without either the phenomena or local condition suggestive of internal hemorrhage. Moreover, the persistence of a distinct, circumscribed tumor for many years, together with its appearance before and after removal, prove that the sac remained intact, the fetus living to the age of three months or more, dying and becoming mummified. The attacks of peritonitis are easily explained, as well as the resulting colicky pains, especially at the time of menstruation. The second period of amenorrhea, occurring two years after the first, with a recurrence of many of the same symptoms

(especially those of pregnancy), it is difficult to explain. It seems incredible to believe, as one gentleman suggested, that there was actually a *third* ectopic gestation on the same side: but if two, why not three? The second may have been a tubal abortion without profuse hemorrhage. I prefer, however, not to hazard an explanation.

The symptoms referable to the recent rupture were quite characteristic, or would have been in a patient who had not had the same symptoms on previous occasions. One might well have been sceptical regarding the presence of this condition in a woman who, four days after a pint of blood had escaped into her pelvic cavity, could make a journey of several miles without apparent inconvenience. It is fair to infer (since the recent sac was not itself adherent, except to the older one) that the slight general effect of the rupture was due to the fact that the entire pelvic cavity was so enclosed by dense, old intestinal adhesions that the hemorrhage was necessarily limited in extent and the shock transient. An interesting question might be raised with regard to the probable development of a fetus that showed so much vitality under such unfavorable circumstances, since the hemorrhage had ceased and its placental attachment was intact.

I might dwell upon other interesting features in this remarkable case, but do not wish to exhaust your patience. I hesitate to apply to it the term "unique," but I have been able to find only a single case which at all resembles it. Repeated extra-uterine pregnancy after removal of one tube is, of course, not so very rare, and Bland Sutton has described an undoubted case of twin tubal conception, but repeated pregnancy in the same tube must be exceedingly infrequent. Taylor's¹ case of supposed repeated pregnancy in the same tube, each time with rupture, is open to considerable doubt, since there was no positive anatomical evidence of the first pregnancy, though the history pointed to it. If it actually occurred, it is probable that the first was a tubal abortion.

Haydon's² specimen (Fig. 4), obtained post mortem and described by Braxton Hicks, resembles mine, as will be evident from a study of the description and drawing. The patient was supposed to have aborted four or five years before, though no fetus was found. She died of internal hemorrhage from a rup-

¹ British Gynecological Journal, August, 1892, p. 168.

² Transactions London Obstetrical Society, 1864, vol. v., p. 280.

tured ectopic gestation. At the autopsy the left ovary and tube were found to be normal. The right tube, at a distance of one and one-half inches from the uterus, was dilated so as to form a sac three inches in diameter, which had ruptured, allowing a three months' fetus and placenta to escape. To the outer edge of the sac was attached a solid mass, the size of a walnut, which contained the bones of a mummified fetus. The ovary was enlarged and adherent to the middle third of the recent sac. It contained a "corpus luteum of pregnancy," estimated at six months. The early fetus was supposed to have perished at two months, the recent one at three months—three months before rupture occurred (!). I have quoted this case not only because it bears such a close resemblance to mine, but also from its bearing on the subject which I shall now consider.

The fact of internal migration of the ovum having occurred, as I stated at the outset, is supposed to be established in a case of tubal pregnancy only when the fimbriated end of the tube in which gestation is found is entirely occluded by an inflammatory process *before conception*.¹ Schäffer² analyzes the evidence presented by Bischoff, Kussmaul, Scanzoni, Duncan, and Virchow, who affirmed that the fact of internal crossing must be inferred if a corpus luteum is found in one ovary and a product of conception in the *opposite* tube—a view opposed by Mayrhofer, on the ground that the presence of the so-called *corpus luteum verum* is not a positive proof that the corresponding follicle contained the ovum that became impregnated. He reviews the reports of cases by Kussmaul, Schultze, and Hassfurth, all of which he regards as doubtful. The forces which combine to carry the ovum toward the uterine cavity—ciliary and peristaltic motions—would hardly, he thinks, permit it to pass from the uterus into the opposite tube. Veit's discovery of active cilia in three cases of ectopic gestation proves that this argument is not a good one. "On theoretical and physical grounds," he concludes, "the possibility of internal crossing is positively denied, and no single case free from suspicion has been observed which proves that this actually occurs." Wyder,³ who believes

¹ Veit, Zeitschrift für Geburtshülfe und Gynäkologie, Bd. xxiv., Hft. 2, p. 327.

² Zeitschrift für Geburtshülfe und Gynäkologie, Bd. xvii., 1889, p. 13 (vide this paper for bibliography of the subject).

³ Archiv für Gynäkologie, Bd. xli., pp. 153-208. Id., Bd. xxvii., 1886, p. 325.

that the usual site of impregnation is in the uterus rather than in the tube, reports a case of ectopic gestation which he regards as "a positive anatomical proof of the possibility of internal migration of the ovum in the human female."

Veit¹ assumes a more judicial attitude, and, after sifting the evidence carefully, does not deny that internal migration may occur, although none of the specimens yet presented in support of the theory is absolutely above suspicion. He calls attention to the following sources of error: 1. Pregnancy occurring in a tubo-ovarian cyst. 2. Closure of the ostium abdominale *during* pregnancy. 3. Difficulty in finding the ostium, even when it is patent. 4. Occlusion of the distal end of the tube, after rupture of the ectopic sac, by retained products of conception. In Hassfurth's specimen (which the late Prof. Schröder regarded as furnishing positive proof of internal crossing) Veit demonstrated the presence of an accessory ostium in the affected tube, through which the ovum might have been discharged in the usual manner.

In presenting this specimen as one which at first seemed to furnish an argument in favor of internal migration of the ovum, I wish to call attention to the fact that, like all the others which have been regarded as supporting this theory, a critical examination shows that it is open to suspicion, for the reason that the distal end of the tube is patent—a condition which is regarded by Veit as strong negative evidence. Moreover, the apparent imperviousness of the proximal portion of the tube presents an equally puzzling problem. My own opinion is that the old sac may represent a gestation occurring in a diverticulum of the tube (the possibility of which has been demonstrated by Dr. Williams), which would not necessarily occlude its lumen so as to prevent the passage of either spermatozoa or ovum from the uterus. The possibility of external migration (*äussere Ueberwanderung*) is of course to be borne in mind, though it seems to be doubtful, by reason of the fixation of the left tube and ovary by dense adhesions, so that we are forced to the conclusion that the second impregnation was effected either in the ordinary manner, or by internal crossing of the ovum after impregnation in the left tube, or in the uterus. The presence of a corpus luteum in the *left* ovary would not in itself be regarded as positive evidence of the latter phenomenon, were it not for the atrophic

¹ Loc. cit.

condition of the right ovary and the appearance which it presents of having been functionally inactive from a period considerably antedating the last pregnancy. In this respect Haydon's specimen of double gestation differs essentially from mine, since the corresponding ovary contained a corpus luteum and the first fetus had probably been extruded from the distal end of the tube, thus leaving the tube practically as patent as it ever was. [Engelmann describes an interesting specimen, in the May number of this JOURNAL, in which he thinks that impregnation occurred by external migration.]

27 EAST 64TH STREET.

THE ELASTIC LIGATURE IN SUPRAVAGINAL HYSTERECTOMY.

BY

R. STANSBURY SUTTON, M.D.,
Pittsburgh, Pa.

(With three illustrations.)

A DOZEN years or more ago the extraperitoneal method of treating the pedicle in supravaginal hysterectomy was introduced by Péan. The instrument known as Koeberlé's serre-neud, consisting of a wire loop and a screw constrictor, with which you are all familiar, was devised by Koeberlé to secure the pedicle in the lower angle of the abdominal wound. These illustrious Frenchmen, and their English-speaking followers who have used this instrument, have proven that the extraperitoneal method of treating the pedicle is a successful one. It has given them a greater percentage of recoveries than the intraperitoneal method. The extraperitoneal method, as introduced by Péan and perfected by himself and his followers, must still be regarded as the most desirable method to be elected when hysterectomy is demanded.

The technique of the operation has been perfected. It admits of no discussion, probably, save as to the question of whether we shall use the wire constrictor of Koeberlé or the elastic ligature

¹ Read before the American Gynecological Society, May, 1893.

of Kleeberg. Years ago I began abandoning the intraperitoneal treatment of the stump and resorted to the extraperitoneal treatment with the wire constrictor. I have succeeded by both the intra- and extraperitoneal methods, but prefer the extraperitoneal because statistics show that it is the better one. I followed it without accident or loss until about three years ago, when I had the misfortune to encounter severe hemorrhage from the stump in a case in which I had, as usual, used Koeberlé's wire constrictor. The stump was a very large one, but more than ordinary care was exercised in securing it. When I suggested to a prominent operator, after the patient was put to bed, that I was afraid the wire might fail to control all bleeding, he replied, "That pedicle can't bleed." Inside of ten hours a fatal hemorrhage occurred, to forever destroy my faith in the wire constrictor.

Twelve years ago, when at Kiel, observing Esmarch's application of the rubber ligature in general surgery, and Schröder's application of Kleeberg's constricting rubber ligature to the uterus below the fundus in operation for fibroids, I was impressed with the advantage and absolute reliability of the constricting properties of the rubber—or, as it is now called, the elastic—ligature. Prior to this time it had been brought to the attention of the profession by Kleeberg, of Odessa, and was afterward ably advocated by Hegar, of Freiburg. After the above accident, as related, in my case, I resolved to lay aside Koeberlé's *serre-neud*. I have never used it since, and will not use it again.

Were the uterine neck a solid body which was not capable of shrinking, the wire constrictor would be reliable; but inasmuch as it is not an unyielding body, it will shrink away from the wire, and unless the operator, his assistant, or his nurse is on the alert to occasionally tighten the wire, thus following up the receding tissues, it is but a question of time until hemorrhage by this method occurs.

My own case is not the only one of which I know, and, were I not without warrant, I could cite a case, occurring in the hands of one of the most careful and prominent operators, which unexpectedly recovered from an alarming hemorrhage under circumstances similar to those which I encountered.

Rubber is the ideal substance for the composition of a constrictor for the compression of tissue such as a yielding cervix

uteri is composed of. It is a matter of small importance whether we adopt the solid elastic ligature, say five millimetres in diameter, or the elastic tubing, the lumen of which is four to five millimetres in diameter. Such a constrictor, turned twice about the cervix underneath the transfixing pin, secured by a double knot, behind which a heavy silk ligature has been firmly tied,

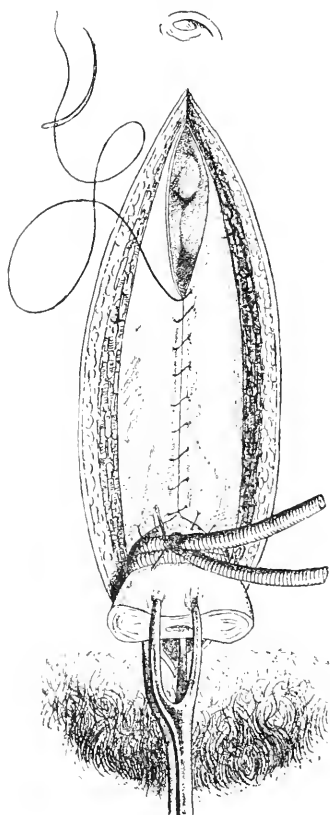


FIG. 1.

FIG. 1.—Suture of abdominal walls above the pedicle: continuous catgut suture of the peritoneum.

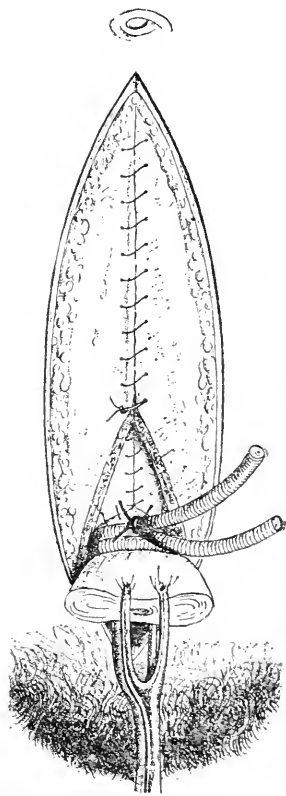


FIG. 2.

FIG. 2.—Continuous catgut suture of the musculo-aponeurotic planes.

and closely in front of which a pair of lock-handled forceps grasps the free ends of the ligature, furnishes us with a method of constriction which is absolutely safe against hemorrhage under all circumstances. There is no depending upon an assistant, nurse, or self to tighten this ligature: it follows up the shrinking pedicle painlessly and effectually.

The primary dressing may remain on the pedicle from nine to thirteen days without any disturbance whatever. There is no risk of disturbing dressing or adhesions by frequently examining the ligature, or disturbing or making traction upon the cervix, as you are liable to do when tightening the *serre-neud*.

The technique of the method which I have followed is that of

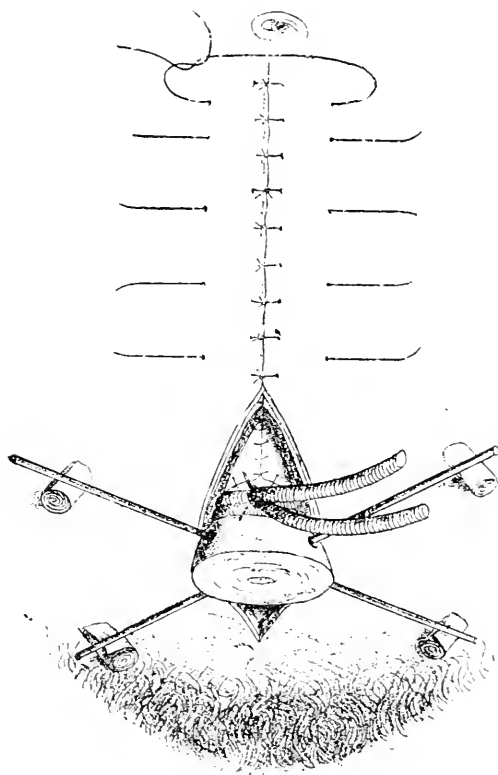


FIG. 3.—Peritoneum sutured in a ring about the lower portion of the pedicle, the stump being strongly depressed to show this suture. Deep sutures for integument in place, and superficial ones tied above the pedicle.

For the purpose of demonstrating the arrangement, and to allow movement of the stump, the wound is shown with the cutaneous sutures below the pedicle not yet in place.

Hegar, depicted most faithfully on page 290, vol. i., of Pozzi's "Gynecology." The figures are here reproduced.

During the three years in which I have used this ligature for the purpose indicated, I have failed to find a solitary objection to it, and my hysterectomies for fibroids have given me no more trouble than my ovariectomies.

In advocating the elastic ligature in supravaginal hysterectomy, I do not wish to be understood as being permanently wedded to either the extra- or intraperitoneal method of treating the pedicle. I am inclined to believe that we are on the eve of adopting the removal of the cervix entirely.

I was among the first American operators to adopt the Trendelenburg posture in laparotomy, and I operate now on the first table which was constructed for the purpose in this country. Two years of experience with this posture have taught me that there is scarcely a limit to the possibilities of intrapelvic surgery. The field of work is opened up to the eyes of the operator. It is as easy to remove the cervix entire as it is to take care of it subsequently in the lower angle of the wound.

When I couple with this the fact that in every instance in which I have removed the entire uterus by the vagina the patient has recovered, I am persuaded that the days of hysterectomy with a pedicle are about ended.

Krug, viewing the subject from the same standpoint, has advocated entire ablation. I have adopted it successfully.

With Eastman's staff as a guide, and Trendelenburg's posture as that adopted by the operator, the excision of the cervix is no longer a difficult matter.

In cases where drainage is desirable the complete removal of the cervix, with an open vagina, adds to the safety of the patient, and in all instances the convalescence is shortened. The only point which I desire to emphasize with reference to hysterectomy is this: If the method involves extraperitoneal treatment of the pedicle, use the elastic ligature and reject the old wire constrictor.

170 RIDGE AVENUE.

THE BEST NEEDLE HOLDER.

BY

HOWARD A. KELLY, M.D.,
Baltimore, Md.

(With two illustrations.)

THE needle holder, although it is only the means of introducing the needle, which in turn is threaded with a loop as a carrier, which finally introduces the ligature or suture by which

the tissues are constricted or splinted together, is still one of the most important of all our gynecological instruments.

Often as I pick up the convenient instrument I am now using I recall the awkward relics lying discarded on my shelves, reminders of numerous experiments, each taken up and tried with enthusiasm, in former years.

Quite a lengthy article might profitably be written about the many requisite virtues of a perfect needle holder, more especially to the advantage of the younger gynecologists, who would thus be saved a deal of experimentation. I propose, however, here simply to describe that holder which I believe to be better than any other I have used.

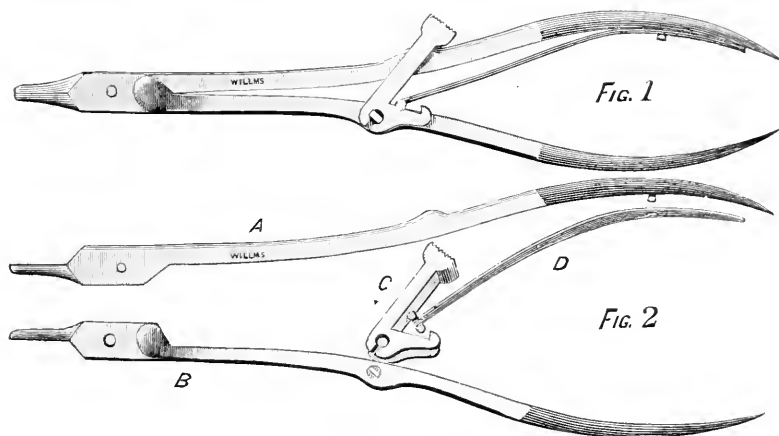


FIG. 1.—Needle holder, parts together (locked).

FIG. 2.—Holder separated into its four component parts.

The original needle holder which I brought from Germany six years ago looked, in general, like that shown in Fig. 1, and has had wide use on the Continent, but has not been so much employed in late years because of its numerous inseparable joints, conflicting with the aseptic aims in the construction of instruments in these days. Dr. Williams, gynecological assistant at the Johns Hopkins Hospital, cleverly modified this so that it could be taken apart and cleansed.

Mr. Willms, surgical-instrument maker in Baltimore, has made further modifications, preserving the form I like best, and making the instrument now one of extreme simplicity, which can with ease be separated into four parts, as shown in Fig. 2.

The figures are so satisfactory that I will not give a detailed

description, but merely remark further that the important points in this needle holder are :

1. The biting end must be lined with copper and grasp the needle firmly.

2. The biting end must be long and narrow, so as not to break the curved needle.

3. The handle must be large enough and well curved to afford the operator a good grip.

4. The locking device must be simple ; it must catch easily and be easily unlocked, releasing the needle.

The remaining points relate to details of construction in view of the aseptic principle, obvious in Fig. 1, well arranged by the instrument maker.

905 N. CHARLES STREET,
Baltimore, Md.

IN MEMORIAM.

CHARLES CARROLL LEE, M.D., LL.D.

Born March 24th, 1838. Died May 10th, 1893.

THE death of a friend is always a calamity, but when that friend is at the zenith of a most brilliant and useful career it is inexpressibly so.

Dr. Charles Carroll Lee was born in Philadelphia, March 24th, 1838. From the earliest history of our country his family has been intimately connected with the growth and development of Virginia and Maryland. In 1777 his grandfather, Governor Thomas Sim Lee, was elected second Republican Governor of Maryland and served during the Revolution. On several different occasions he was appointed by the Legislature of Maryland and President Washington to fill other important positions connected with the government of the United States and Maryland. His son, John Lee, represented Maryland in the United States Congress for a number of years, and was the father of Dr. Charles Carroll Lee. Dr. Lee's mother was a granddaughter of Charles Carroll of Carrollton.

Dr. Lee's early education was received at his home, Needwood, Maryland. He graduated with honors from Mt. St.



Chas Lanou Lee

Mary's College, Emmittsburg, in 1856. In 1890 the same college awarded him the degree of LL.D.

He studied medicine at the University of Pennsylvania, and received the degree of M.D. in 1859. After graduating he served in various capacities in Blockley, Wills, and the Pennsylvania hospitals. In 1861 he was made an assistant surgeon in the regular army, and served until the close of the civil war. Two years later he resigned, and settled in New York City, where he resided until his death, May 10th, 1893.

Soon after taking up his residence in New York, Dr. Lee was appointed surgeon to St. Vincent's and Charity hospitals, and later served the Woman's Hospital of the State of New York, first as assistant surgeon and afterward as surgeon. At the time of his death he was consulting surgeon to the Woman's, City (Charity), and St. Elizabeth's hospitals, and also attending physician to the New York Foundling Hospital and president of its medical board. He was professor of the diseases of women in the New York Post-Graduate Medical School and Hospital.

Dr. Lee took an active part in the transactions of a number of different medical societies, and was called to different parts of the country to discuss prominent questions pertaining to his specialty. He was a member of the New York County Medical Society, and president of it at the time of his death; Academy of Medicine; Physicians' Mutual Aid Association; New York Obstetrical Society, of which he was president in 1881 and 1882; and the American Gynecological Society.

Dr. Lee has contributed to the "International Encyclopedia of Surgery," "The American System of Gynecology," and very generally to medical journals throughout the country, although he has never written a complete book.

In 1863 Dr. Lee married a daughter of the late Dr. Isaac Parrish, of Philadelphia, and leaves a wife and five children—two sons and three daughters. One of his sons has finished his second course of lectures at the College of Physicians and Surgeons, while the other is studying law at Columbia College.

Dr. Lee had received all the advantages that education could afford, and made the best use of them. He was always willing to try a new method that in his opinion offered advantages over the method he had been using. He knew nothing but progress; still, on the other hand, he was not a reckless operator. In simple operations his talent was not displayed, but in the face

of emergencies he was never at a loss as to what to do, and his quickness of mental action and promptness of execution aroused the admiration of all and saved the lives of many. If he thought a certain line of action was for the welfare of his patient, he adopted it, no matter what the opposition or the personal sacrifice he was called upon to make. After performing a serious operation he always gave his patient the most careful personal attention, and this was especially so in hospital practice. He left nothing to chance, and this largely accounted for his success. He would not operate for the sake of operating, but for the purpose of relieving his patient; and if he thought that a particular operation could be performed better by some one else, the patient was transferred.

He respected an honest opinion, though it differed widely from his own, and it can easily be said that there was no physician in the city of New York who was more generally liked by physicians. He was easily approached, and had a special liking for young men and was a great favorite among them.

Dr. Lee was not only a physician, but widely cultivated in matters of art and literature, and found in them his chief recreation from professional work. He had no sympathy with pretence of any kind. Simple and direct in his own life and mode of thought, kind and considerate toward all with whom he came in contact, his life fulfilled the ideal of the "courteous gentleman." His friends admired him, his patients loved him.

RALPH WALDO, M.D.

CORRESPONDENCE.

VAGINAL LIGATION OF A PORTION OF THE BROAD LIGAMENTS FOR UTERINE TUMORS AND HEMORRHAGE.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—I have read with much interest in the April number, 1893, of your valuable JOURNAL, under the heading of "Original Communications," the article by Dr. Franklin H. Martin, of Chicago, entitled "Vaginal Ligation of a Portion of the Broad Ligaments for Uterine Tumors and Hemorrhage," and

was much surprised to find that he not only claims priority but also originality, not only as to theory but also the technique of the operation. In this connection I wish to direct the attention of the readers of your JOURNAL to an article I read before the St. Louis Medical Society on May 17th, 1890, entitled "A Case of Atrophy of the Female Genitalia following Pregnancy, and Remarks," which was published in the August, 1890, number of the St. Louis *Courier of Medicine*.

Dr. Martin says in the discussion of the subject (page 482. AMERICAN JOURNAL OF OBSTETRICS, etc., April, 1893): "The next questions of interest to me were: (a) Is the idea of the operation of ligating the broad ligaments for the controlling of hemorrhage, or for changing the nutrition of uterine tumors so as to check their growth and reduce their size, original with me? (b) Is the execution of the operation also original?"

Now, Mr. Editor, when we talk of ligation for checking hemorrhage or for the diminution of growth of any tissue, be it physiological or pathological, we naturally presuppose that we are to ligate a feeding vessel alone, and not nerves, lymphatics, connective tissue, etc. Had he read my article referred to above, he would doubtless have found that the idea was not without precedent, to say the least. In the discussion of this subject he draws attention especially to the ligation of the uterine artery, and directs the operator as to the importance of feeling for the pulsation of the vessel.

In the discussion of *my* case of atrophy you will see to what conclusions I come, namely:

"Now the question presents itself thus: How and by what means was this atrophy brought about? For in order to treat the case this question should be uppermost in our minds.

"Let us consider for a moment the arterial supply to the uterus and its appendages.

"The arteries of the uterus are the uterine from the internal iliac, and the ovarian from the abdominal aorta. They are remarkable for tortuous course in the substance of the organ and for their frequent anastomosis. The veins are of large size and correspond with their arteries. The uterine artery passes downward in its course from the internal iliac to the neck of the uterus, then upward along the side of the body in a tortuous manner between the two layers of the broad ligament. Now what became of these arteries during the inversion of the uterus? Is

it not reasonable to suppose that they were so twisted and turned upon themselves in such a manner as to occlude their calibre, and that in the process of descent and restitution of the organ that these functions were so impaired as to longer unfit them as blood carriers, and as the organ was deprived of nourishment, it very naturally atrophied? The same condition followed in the vagina, and from the same cause: an obstruction to the arterial supply. This explanation seems to my mind the only one in this case. In studying uterine therapeutics we find that leading men now treat inflammations of the uterus and peritoneal inflammation by tamponading the vagina, believing that aside from the medicinal agents with which they may be saturated, that much benefit is derived by the mechanical pressure brought about. The rationale of the treatment of fibroids by the use of ergot is to decrease the blood supply to the organ, and on the supposition that ergot contracts the arterioles.

“The ligation of the vertebral artery for the cure of epilepsy is on the supposition that the blood supply may be decreased. So also the electro-therapist uses his positive or negative electrode to dilate and contract, to congest and to empty. It will be remembered that I stated, when quoting the cases of superinvolution of the uterus reported by Hardon, that the menstruation was brought on by the use of galvanism, and that the organ was, as it were, redeveloped, both in function and structure.

“Admitting for a moment that I may be right in the supposition that this atrophy was due to an artificial ligation of the nutrient arteries, I am emboldened to make this statement: namely, I believe that in the *treatment of uterine fibroids, whether submucous, intramural, or subperitoneal, as well as for chronic inflammations of the organ, to ligate the uterine artery* would not be an unscientific procedure. On the contrary, the more I have thought of it, the more I am inclined to believe that it would be the most rational and at the same time most certain mode of treatment. To do this it would not be necessary to open the peritoneum. *Place your patient in the lithotomy position, as if to perform a vaginal hysterectomy, and, if for a fibroid tumor, make your incision alongside of the neck, right or left, as the case may be, according as the tumor may be to one side or the other; dissect up the tissues till you feel the pulsation of the artery; throw around it your catgut ligature, tie it, and the operation is finished. The collateral circulation is so perfect and extensive,*

the artery so easily reached, the after-treatment so simple. I do not see why it may not be done."

Dr. Martin says: "My proposition of performing this operation, as an operation in itself, for the purpose of obtaining permanent benefit as a *curative procedure, is original*" (italics mine). But it will be seen by the careful reader that I have demonstrated that I have not only preceded Dr. Martin as to originality, but gave directions as to how the operation should be performed, even so far as indicating the position in which the patient should be placed.

Since the publication of my article I have performed the operation a number of times on the cadaver, and have demonstrated to my own entire satisfaction that the procedure is practical, and in suitable cases will no doubt prove in the future to be eminently proper.

Respectfully yours,

WALTER B. DORSETT, M.D.

1336 WASHINGTON AVENUE, ST. LOUIS,

April 14th, 1893.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

DEAR SIR:—Dr. W. B. Dorsett, of St. Louis, writes to me enclosing a reprint in which he claims priority for the idea of my article published in the April number of your JOURNAL. Will you kindly call attention to the fact that the idea of his operation is limited compared to mine, inasmuch as he advises simply the ligation of the uterine artery, while I advise ligating as much of the broad ligament as possible, without usually including the ovarian artery, but under desperate circumstances also including the latter blood channel in suitable cases; my idea being to cut off nerve supply as well as blood supply, with the object in view of producing a profound shock and considerable change of nutrition.

I certainly should have given him credit for the work done if his article had been noticed in the "Index Medicus"; but, being in an obscure journal, it was overlooked. My operation is distinct from his in idea and execution, being "ligation of the broad ligament from vagina," while his, *as published*, was sim-

ply a *suggestion* that the uterine arteries be ligated for uterine fibroids. The execution took place later—never published.

Yours very truly,

FRANKLIN H. MARTIN.

163 STATE STREET, CHICAGO, April 25th, 1893.

TRANSACTIONS OF THE EIGHTEENTH ANNUAL MEETING OF THE AMERICAN GYNECOLOGICAL SOCIETY.

HELD IN PHILADELPHIA, MAY 16TH, 17TH, AND 18TH, 1893.

The President, DR. THEOPHILUS PARVIN, in the Chair.

After the address of welcome by the President, DR. PAUL F. MUNDÉ, of New York, read a paper entitled

ABDOMINO-PELVIC FISTULA AFTER CELIOTOMY AND LAPARATOMY;
ITS PREVENTION AND TREATMENT.¹

DR. WILLIAM GOODELL, of Philadelphia, being called upon by the President, said: I have had lots of experience, but it has tallied so nearly with what Dr. Mundé has written that I have little to say. The paper has covered the whole ground. My own experience has been that these fistulæ very rarely occur in strict ovariectomies, but when they occur it is almost always in septic cases. I have had more in years gone by than recently, or since adopting the method Dr. Mundé advocates in his paper, that of using catgut, but I do not think these fistulæ always originate in the kind of ligature employed. His suggestion to draw the drainage tube slowly down strikes me as being a very admirable way of removing it. In one case in which I made drainage of the fistulæ through the vagina the patient disappeared from view before the tube had been finally withdrawn, and I heard that she died subsequently; but whether the death was due in any way to the tube I do not know. In that case I had a good deal of hemorrhage when cutting down upon the point of the sound in the vagina, and was able to arrest it only with difficulty, as the parts were extremely vascular.

These skin abscesses will occur occasionally. My experience is, they will occur oftener where we use drainage, and also in fat women. I have not for many months had any fistulæ of any kind, but I have tried to avoid the use of the drainage tube, and I use absorbent gut for ligature.

¹ See original article, p. 795.

DR. CHARLES P. NOBLE, of Philadelphia.—I wish to speak of only two points. In the first place, my own experience has been like Dr. Goodell's, that sinuses following ordinary celiotomies are not due so much to the ligature as to the fact that not all the diseased tissue has been removed. In my early work I had several sinuses in which that was unquestionably the cause—cases in which old, adherent pus tubes were very difficult to remove, and in which the diseased tube extended clear up into the horn of the uterus, and where, instead of cutting out the horn and sewing up the wound with a separate ligature, I simply applied the ligature in the usual way, which left a certain amount of the diseased tube. I had a sinus occur in two such cases; one healed spontaneously, in the other the sinus is still open. But since adopting the method of removing all diseased tissue I have had no further trouble. I have always used silk, and I do not think it makes much difference whether silk, cat-gut, or any other material whatever is used, provided the diseased tissue is all removed.

Now, with reference to pus ever being outside the tubes and ovaries, I have had some experience with that point. I believe as strongly as any one that, as a rule, where there is pus in the pelvis it is in the tubes, or ovaries, or peritoneal cavity, as a result of diseased tubes and ovaries. If there are any exceptions to the rule, it is in puerperal cases. Indeed, I have seen five puerperal cases in which the pus was in the broad ligaments and had nothing to do with the tubes and ovaries. In four of these cases the abdomen was opened, and the tubes and ovaries were examined and found perfectly healthy. Of course they were somewhat congested—it would be impossible for a tube to lie over a pelvic abscess without becoming congested—but they were not diseased, they were not distended with pus. The patients all made good recoveries. In the fifth case, while I believe it was one of abscess in the pelvis, the abdomen was not opened, and, therefore, I cannot say absolutely that the tubes and ovaries were healthy; but in view of the fact that, on making examination, the broad ligaments were found perfectly flaccid, the evidence seemed pretty clear that the pus was in the connective tissue of the pelvis. Those are the only cases which I have seen in which the pus was not connected with the uterine appendages.

DR. ANDREW F. CURRIER, of New York.—I think it will help us in the consideration of this question to separate the cases in which the sinus forms spontaneously and those in which there was pus at the time of the operation. Dr. Mundé referred to a certain number of cases, which are familiar to all of us, in which the abscess is connected with extensive inflammation in the plane of the cellular tissue, and such cases, it seems to me, are to be managed differently from those which arise after an abdominal section. Then, again, we may divide that class of cases into

two, one of which is quite a small one, and was spoken of by Dr. Mundé as the vaginal sinus coming after hysterectomy; the other class, by far the largest one and most troublesome, including cases which come after abdominal section pure and simple.

I believe, with the reader of the paper, that there are cases in which, however the operation may be performed, a fistula will form; that is to say, it is inevitable; that there is another class of cases in which the fistula is avoidable, and our attention, I think, should be limited on this occasion to that class. Among the first class are cases in which the fistula has been caused by irritation of the ligature, which may have been perfectly aseptic. From its very size or abundance it may set up irritation of the peritoneum with effusion and thus cause a sinus. Yet I believe that by far the greater number of cases owe their origin to the abuse of the drainage tube.

In all the cases which I have seen the walls of the fistula have been formed by the intestine itself, and the fact that this is the usual condition should be remembered in connection with treatment. If we use the curette, as many of us do and as I think is very often proper, we may break up the granulation tissue which forms around the intestine and is easily broken down, and we may thus cause serious injury to the gut itself. As to astringent applications, mild or severe, they are, in my opinion, not likely to produce much benefit. There are cases which we know heal spontaneously, and they are the ones, perhaps, which are most likely to be benefited by mild astringents; but as a rule these fistulae are not single, and the astringent does not reach all the parts. It may come in contact with the most superficial portion, but the deeper still remains open in spite of such treatment.

A word with regard to the treatment by through-drainage. I think it is a very valuable method. I wish, though, to refer to the fact that it is possible, in going through the vagina to establish drainage, to injure important parts. I have had an experience of that kind myself, and it seemed to me from the severe hemorrhage that followed that I must have injured the iliac vein.

It may illustrate what I consider the proper treatment for these cases of complex sinus by relating one which had been under the care of a New York gentleman of great eminence for a long period, the sinus having existed for two years. The probe could be passed down to the bottom of the pelvis. The treatment which I had expected to carry out in the case was that which I believe would be necessary in a great many; but while preparing the patient by thorough curettement and antisepsis, I felt and removed a large ligature of silk and a portion of tissue. The patient then recovered without further interference. It had been my intention to open up the sinus its full distance, but, fortunately, this was not necessary in the present case.

DR. A. PALMER DUDLEY, of New York.—Dr. Currier's illustration upon the board has only emphasized what I want to say on the subject of abdominal fistula following celiotomy. As the author has stated, most of the fistulae follow in the wake of pus in the pelvis. There are three conditions in which they may take place—namely, the existence of pus in the pelvis which has not been entirely removed, the use of a drainage tube, or the infection of the ligature during its application. To avoid the likelihood of fistulae following the use of silk ligature I have employed only animal ligature in tying the pedicle. I believe, also, that we sometimes leave tissue that is thoroughly septic beyond the tube. Some gentlemen cauterize it with the thermo-cautery, some use pure carbolic acid, and because of the existence of such a condition they use a drainage tube, and this assists in the formation of fistulae. In trying to do away with the dangers they increase those dangers by using the drainage tube. I have seen five or six cases of fecal fistula and abdominal fistula resulting from such treatment, and for that reason I do not hesitate to say that I disagree with Dr. Mundé in his advice respecting a second abdominal section. I do not hesitate to make it, and in all the cases I have either found a pus pocket near the horn of the uterus or I have found a ligature. In at least four instances of fecal fistula after abdominal section I found the ligature to be the cause. To prevent that accident it has been my practice not to use drainage through the abdomen of any sort after operating for pelvic abscess, but make an opening into Douglas' pouch behind the uterus and drain by gauze in that direction. I have seen no bad result, and believe that I have saved many lives by that method of drainage. I have always argued against up-hill drainage where it is possible to avoid it.

With respect to fistulae forming about the bladder and in the cellular tissue, I quite agree with Dr. Mundé in his idea that pelvic abscess may occur in these structures, for I have seen a number of cases.

DR. GEORGE M. EDEBOHLS, of New York.—I do not wish to go over the ground which has been so well covered by previous speakers, but for the sake of completeness I wish to call attention to a condition which is responsible for many of our abdomino-intestinal fistulae following celiotomy, and which has not yet been mentioned. I refer to tuberculosis of the peritoneum or intestine. About a year ago, in a discussion before the New York Obstetrical Society, I reported my full experience with cases of fecal fistulae following celiotomy. There were four cases. Two were due to tuberculosis. In one the celiotomy was done for tuberculosis of the peritoneum, and one of the ulcers perforated the intestinal wall and became connected with the abdominal wall as a fistula. The case remained as a fecal fistula three or four months in my hands, and then went to Dr. Wylie, and

was cured by his house surgeon establishing abdomino-vaginal through-drainage, and the patient has been in the best of health since. The second case was a rather peculiar one. There was disseminated tuberculosis in the peritoneal cavity, and about a month after celiotomy an intestinal fistula formed at a little distance from the wound. The patient died of general tuberculosis, and at the autopsy it was found that the peritoneal tuberculosis had been cured, but a tubercular ulcer in the interior of the intestine had perforated the gut and formed attachments to the abdominal wall, thus constituting an abdomino-intestinal fistula.

DR. CLEMENT CLEVELAND, of New York.—When the President called upon me to speak, just after the paper had been read, I thought there was certainly very little for me to say, and I think so now, as the paper covered the ground so thoroughly. I may, however, mention one or two points. As to the cause of sinuses after celiotomy or laparotomy, I myself have never had a permanent one which was not due to the presence of some foreign material—say the suture. For the treatment of permanent fistulae I believe through-drainage is the only method.

My chief purpose in rising is to mention the value of peroxide of hydrogen in healing these sinuses. I have used it in various strengths, but as a rule in full strength. I have lately employed it in one case in which the sinus had lasted several weeks, the laparotomy having been done for removal of the kidney. It acted very satisfactorily indeed, and I think it is of such great importance as to deserve mention on this occasion.

DR. MUNDÉ, in closing the discussion, said: I brought the paper before the Society for the purpose of learning how to prevent such sinuses in the future, as I felt that I did not quite know; and also for the purpose of presenting in a succinct form, if I have done so, a subject which, it seems to me, has not been sufficiently considered except in a desultory way. Everybody knows that these fistulae occur, but we find very little written as to how to prevent them, or cure them after they have developed. I have been very much pleased with the remarks of the gentlemen.

Dr. Noble, I think, has mentioned in his remarks the most prominent cause for the persistence or formation of these fistulae—namely, something left behind, whether it is adherent tubes and ovaries or other pathological tissue which has not been fully removed. As to prevention, it seems to me a wonder, not that we have sinuses occasionally, but that we do not have them oftener, especially in cases of pus in the pelvic cavity. I have drained through the vagina in only one case where, after opening the abdomen, the pyosalpinx tumor burst and infected the peritoneum. There was no other way, in that instance, of draining the bottom of the cavity.

I have used peroxide of hydrogen and think well of it, but forgot to mention it in my paper. It is especially valuable where there is pus or septic material.

DR. ANDREW F. CURRIER, of New York, read a paper on

THE TREATMENT OF SEPTICEMIA WITH OXYGEN.¹

DR. J. WHITRIDGE WILLIAMS, of Baltimore.—I am sorry you called upon me, Mr. President, for I have had absolutely no experience in the treatment of septicemia with oxygen. I have listened with great interest to the paper, and regarding the facts mentioned with reference to bacteriology I think that they are well founded and have been ably presented.

One point may be mentioned. He spoke of a colon bacterium and that it had not infrequently played a part in septicemia. In a recent work on bacteria and puerperal septicemia the author gives a case in which the secretion from the interior of the uterus contained, not the ordinary pathological organisms usually found there, but colon bacteria.

DR. PAUL F. MUNDÉ, of New York.—Puerperal septicemia is a disease which I very often see in consultation, and practical experience with it has verified the conclusion that in the treatment the question of success will depend upon which can last the longest, the septic infection or the patient. If the patient can hold out long enough the disease will be thrown off. As far as our therapeutic resources are concerned, we are absolutely helpless, except in doing what we may to keep the patient alive as long as possible. Therefore, along with alcohol, with nutritious food and fresh air, it seems to me that oxygen is only another means of keeping the patient alive. I presume we must take it for granted that septicemia is due to a bacterium, although I did not think it had been entirely proven; at least, it had not been proven there was a particular kind found in the blood of septicemic cases. But, assuming that is the cause, we certainly have not at present any means of killing it, and Dr. Currier has done us a valuable service in pointing out the usefulness of oxygen in prolonging the life of the patient.

DR. CURRIER closed the discussion, and said he thought Dr. Mundé's explanation of the efficacy of oxygen was probably the correct one, that it served to prolong the life of the patient and to enable her to resist and outlive the disease.

OPERATIONS UPON THE UTERINE APPENDAGES WITH A VIEW TO PRESERVING THE FUNCTIONS OF MENSTRUATION AND OVULATION.

DR. WILLIAM M. POLK, of New York, in the opening remarks of his paper, said: The subject is not new, but has never been discussed at length by this Society. Therefore I present it, hoping for that candid criticism for which this body is noted. If the matter has a standing in court let us know it. If not, let it be relegated to the loft with other questions from the past. When I brought the question up in the meeting of 1887 you

¹ See original article, p. 806.

were not prepared for its discussion, except upon generalities. How far we have now gotten will no doubt appear in the discussion.

We hold that this function—menstruation and ovulation—is an aid rather than a hindrance to female life, provided it can be freed from inordinate distress. The safety of peritoneal surgery is established. We eliminate from the question ovarian tumors, dermoid cysts, pelvic abscess, tuberculosis, and cancer, and confine ourselves to simple salpingitis and its accompaniments.

The conclusions arrived at in the paper were similar to those which he had drawn on a former occasion, and were as follows :

1. In cases of chronic disease of the appendages the incisions should be in the nature of "exploratory incisions."

2. The question of removal should be in the main left for determination after the organs have been exposed.

3. That the condition of the ovary should be the chief factor in determining the question of procedure.

4. That, if need be, this may be determined by exploratory incision of the ovary or puncture.

5. That if the ovary contains pus, it and the associated tube should be removed, it being the rule that whenever an ovary is removed the tube must accompany it.

6. That if the tube contains pus, the ovary being free from pus or disseminated cystic degeneration, the operator is at liberty to recommend either the removal of both organs or else the partial amputation of the tube, leaving the ovary; and that the same rule should apply in cases of hydrosalpinx and hematosalpinx.

7. That cysts of the ovary do not indicate removal, provided they are not general throughout the organ and can be enucleated—hematoma of the ovary a possible exception.

8. Tubes with open infundibula, even though adherent and affected with parenchymatous inflammation and endosalpingitis, do not demand removal, excepting when one opens into a pus cavity.

9. A tube whose outer end is closed may be opened, cleansed, and its inner and outer coats coaptated, and then be returned to the abdominal cavity, provided it does not contain pus and possibly old blood.

10. Adhesions do not demand the removal of the tubes and ovaries, unless they be so dense that in breaking them the appendages are seriously injured. This presupposes that the appendages in themselves are not sufficiently diseased to demand removal.

Pregnancy had taken place in a few of eighty-four cases operated upon with a view to preserving the functions of menstruation and ovulation.

THE DEVELOPMENT OF THE INTRAPELVIC TREATMENT OF THE
STUMP AFTER HYSTERECTOMY FOR FIBROID TUMORS,
AND ITS PRESENT STATUS.

DR. J. RIDDLE GOFFE, of New York, read the paper. The early abdominal sections for fibroid tumors were made under the misapprehension that the operator was dealing with an ovarian cyst, and the abdomen was closed without operative procedure. The first man to do a hysterectomy for a previously diagnosed fibroid tumor was Kimball, of Lowell, Mass.; so that America leads in the attack upon fibroids as well as upon ovarian cysts. His case recovered. This was in 1855. Koeberlé and Péan, two French surgeons, however, deserve the credit of establishing the operation upon a scientific basis. They used the clamp and metallic loop, and fastened the stump in the abdominal wound.

Since their time effort has been constantly made to devise some means of disposing of the stump by dropping it into the pelvis, as in the treatment of the stump of an ovarian cyst, till to-day we find the operation so thoroughly established that only questions of detail in the refinements of the operation are now considered. The ideal operation so long predicted is now being realized, and the question of to-day in this connection is not, Shall I use the extraperitoneal or the intraperitoneal method? but, Shall the cervix be left or shall it be total extirpation?

The operation that was long regarded as a typical procedure in intraperitoneal treatment of the stump was first established by Carl Schröder. It was characterized by ligation of the broad ligaments and suturing the stump by superimposed cat-gut sutures. These sutures were not sufficient to control the blood supply, and he lost his cases from secondary oozing into the stump and infection of the peritoneal cavity. A. Martin, of Berlin, Brennecke, and Zweifel continued to employ his method, each in his own modified form and with varying success. Schröder's mortality was thirty per cent. Martin reduced this to twenty-two per cent, and Zweifel to ten per cent. Zweifel then abandoned the suture and substituted the continuous chain ligature.

During the years 1888 to 1890 Dr. Goffe, with the association and assistance of Dr. Dudley, devised and developed a method of disposing of the pedicle, and published it to the profession in 1890 in *THE AMERICAN JOURNAL OF OBSTETRICS*.

The peculiar features of his operation are (1) the large, distinct peritoneal flaps with which the stump and all traumatic tissue involved in the operation are buried beneath the peritoneal cavity; (2) the transfixion of the stump inside these flaps; and (3) the utilizing, when necessary, of the cervix as a drainage tube. By this method Dr. Goffe had had six cases with one death. He also reported eight others by three differ-

ent operators, with one death, making in all fourteen cases with two deaths. Dr. Heywood Smith, of London, and Dr. Milton, of Cairo, Egypt, had modified the operation by transferring the ligature on the pedicle to the uterine artery in the broad ligament, and reported seven cases, all successful. By this modification the method of controlling hemorrhage conforms to that of total extirpation, suppuration is avoided, and the operation becomes truly ideal.

Dr. Baer had advocated this modification in a paper before this Society last year, and reported eleven cases with one death. During the past month it has been done twice in New York, once by Dr. Janvrin and once by Dr. Tucker, with recovery.

In the meantime A. Martin, of Berlin, followed by Chrobak, of Vienna, has been advocating and practising total extirpation. They do the operation in two steps—cutting away the tumor and uterus at the cervical junction, and then removing the cervix. This technique has been improved by Drs. Polk, Florian Krug, and others in this country, by going down into the vagina in one procedure and removing the tumor, uterus, and cervix *en masse*.

In 1891 Zweifel, of Leipzig, reported a series of fifty-one cases with two deaths, by a method that corresponds in all essential particulars with Dr. Goffe's method, thus giving a mortality of only four per cent. This is the best record made by any operator by any method, and puts the operation on a par with the success of ovariectomy. Competition for supremacy lies between this method of leaving the pedicle and total extirpation. The disadvantage of total extirpation is the technical difficulty of removing the cervix. By leaving the cervix as a stump the traumatic tissue is disposed of with all the nicety of a plastic operation, the parts are restored to their normal relations in the pelvis, and no raw surface is left to contract adhesions or produce obstruction.

Statistics are strongly in favor of retention of the cervix. Fifty-one operations with only two deaths, a mortality of four per cent, and the last twenty-seven an unbroken series of successful cases, is the standard that is set for the total-extirpationists.

A CASE OF INVERSION OF THE UTERUS.

DR. EDWARD P. DAVIS, of Philadelphia, related a case of inversion of the uterus, and briefly considered questions of causation, treatment, etc. In the present instance there was no fibroid or other tumor; the pelvis was about normal and in normal proportion to the child; neither ergot nor strychnine had been given, though the woman had received some quinine, but it was not probable that this drug had had any influence in causing inversion; nor had the cord been pulled upon until the pla-

centa and uterus were distinctly visible at the vulva. The patient was in shock, and, as it had not been overcome at the end of two hours or more, he decided to try to replace the uterus, which was accomplished with great ease, but the patient died.

PRACTICAL POINTS IN DRESS REFORM.

DR. ROBERT L. DICKINSON, of Brooklyn, read a paper, which was illustrated by diagrams, calling attention to certain practical points in the reform of dress of women, and referring more briefly to the physiological and other reasons for such reform. It was only necessary, in a meeting of physicians, to merely mention the interference of the corset, bands, and overlapping of the several articles of wearing apparel with abdominal respiration, physiological development, and graceful motion. One could hardly hope during Fashion's reign for the sudden general adoption of radical reforms, yet it was the duty of physicians to do what they could to induce girls and women to discard harmful modes of dress. The practical points which he had to suggest permitted, as far as was consistent with physiological laws, of so dressing as not to appear odd. Five illustrations were given, four showing essential articles of wearing apparel. The first was the undergarment, fitting closely, made of one piece, extending from neck to ankles; the second, only for use on going out in the winter, consisting of heavy knit goods, closely fitting, drawn on up to the waist, retaining its place by its elasticity; the third was a skirt and waist in one piece, of stiff muslin, hanging by broad band from the shoulders, and intended to protect the dress from the underwear, and to prevent exposure of the limbs; the fourth was the dress itself, which also consisted of one piece, fitting the body neatly, but with such ornamentation as might suit the taste or add grace to the figure. The fifth article was not an essential, but was added to conform to Fashion's demands, being a kind of sacque.

DR. KING and DR. E. C. DUDLEY made a few remarks upon the subject, warmly approving the object of the paper, to effect a reform in woman's dress, and on motion of Dr. Dudley a vote of thanks was tendered the author.

SOME ELEMENTS OF SUCCESS IN CELIOTOMY.

DR. A. LAPHORN SMITH, of Montreal, read this paper. Among the statements made were the following: The author now had such faith in Howard Kelly's method of disinfecting the hands that he was not afraid to go from a puerperal septic case to an operation. He had done away with sponges. The site of operation was rendered perfectly clean by keeping soap and water applied for two or three days before operating. Mural abscesses were often due to bruising by pressure forceps, and could be avoided. Fistulae following operations were apt to have their

origin in silk ligature, consequently he used gut. The custom of removing the sutures from the abdominal wound in five or six days favored hernia, as the union was of new tissue, which would stretch as would that uniting the divided tendon achilles in operations for talipes. Therefore he united the abdomen by silk-worm gut and left it in a month. He kept the external wound covered with boracic-acid powder, which, keeping the parts dry, left no moisture for the development of germs. Irrigation should take the place of sponging out the peritoneal cavity, for the sponges were irritating and might also cause infection. He condemned styptics for checking oozing in the abdominal cavity. Operations should not last over an hour, otherwise there would be danger of death from anesthesia, though usually attributed to shock.

DR. BALDY and DR. SIMS discussed the paper.

CLINICAL REPORT OF PYOSALPINX TREATED BY UTERINE DRAINAGE,
WITH SUBSEQUENT CONCEPTION.

DR. ROBERT A. MURRAY, of New York, read a paper on this subject. It having been taught so recently that whenever a tube contained pus it should always be removed, the title of his paper might sound strange. The author related only six cases, because their histories were full and definite; but others about equally convincing to himself had occurred in his practice. He was somewhat surprised that more like cases had not been published, as it was his belief that not infrequently pus tubes recovered by escape of the pus into the uterus. The cases of this nature of which he read the histories were six in number, in three the pyosalpinx having been of gonorrheal origin, in three of puerperal origin. A sufficient proof of recovery was the disappearance, after treatment, of the swelling located in the tube, and the occurrence of pregnancy, the author attending the patients in more than one confinement in some instances. In all the cases reported the history of gonorrheal or puerperal pyosalpinx was clear; and the diagnosis of the location of the swelling and of its nature was demonstrated by seeing the pus come from the uterus when the tube was pressed upon, other physicians being witnesses to this phenomenon as well as himself. The treatment had consisted of thorough curettement of the uterus for endometritis, washing it out, application of carbolic acid, and drainage. The class of cases of pyosalpinx which offered a fair chance of recovery by this means, without the necessity for removing the appendages, were those in which the tubes were on a level with the uterus, movable, patent, and those in which, if lower down, they could be lifted up. Where there were adhesions and the tubes were blocked, recovery would be prevented by interference with drainage into the uterus.

THE PRESIDENT said that, if the author's experience were cor-

roborated by cases in the practice of other gentlemen, this was one of the most important papers read before the Society.

In its discussion Dr. JOHNSTONE related a case in which he witnessed drainage of hematosalpinx into the uterus, and Dr. EDEBOHLS had had some experience like Dr. Murray's and did not doubt that pyosalpinx did sometimes recover by drainage through the uterus and the treatment of endometritis. Dr. NOBLE expressed doubt. Dr. GORDON spoke of treatment of endometritis, practising dilatation alone for drainage, not introducing gauze or a tube.

THE TECHNIQUE OF PRIMARY CELIOTOMY IN ADVANCED ECTOPIC GESTATION.

Dr. WILLIAM T. LUSK, of New York, read a paper, relating a case and giving condensed histories of the few more similar ones on record in which celiotomy had been performed for advanced ectopic gestation. After studying the methods and results in the cases which had been reported, he decided to remove the entire placenta and sac in his case, which had come under his observation after about the fifth or sixth month. The small intestines were adherent everywhere, the uterus was attached to the tumor at the lower posterior surface on the right, the left tube was of normal dimensions. The lower segment of the sac occupied the entire pelvic space; evidently it had started in the right tube, and the subsequent development had been to a great extent between the folds of the broad ligament. He first attempted to sever the attachments to the intestines, but there was profuse bleeding from the sac surface. He then tied the ovarian arteries. Two ligatures were applied to the uterine surface, and for further security he tied the left ovarian arteries, for there were some adhesions on this side also. These ligatures controlled bleeding to a marked degree. Then cutting down to the ovum, its separation was easily effected by the fingers. There was marked hemorrhage on rupture of the sac, and compression of the aorta was resorted to during completion of enucleation. Hemorrhage from the placental site was controlled by pressure with gauze. Remnants of membranes attached to the intestine were removed, the sac was tied off as well as could be done. The child lived twenty-five minutes, its length being about twelve inches, its weight about twenty-four ounces. The patient suffered a good deal from shock, but recovered. The gauze was gradually withdrawn and the sinus had nearly closed.

The number of cases thus far reported of primary operation for advanced ectopic gestation was thirteen. The author did not approve of waiting in these cases.

Dr. H. C. COE, of New York, read a paper on

INTERNAL MIGRATION OF THE OVUM.

Dr. J. WHITRIDGE WILLIAMS, of Baltimore, illustrated on the

board the condition which he had found on examining the specimens in Dr. Coe's case, and said: One explanation would be that the ovum passed from the left ovary through the corresponding tube into the uterus, entered the other tube, and went past the tumor containing the mummified fetus, or else it must have crossed over in the abdominal cavity and reached the fimbriated extremity of the opposite right tube, and, being unable to pass down further than the mummified fetus, took up its location at the place where the ruptured sac was found. It could not have passed the mummified fetus, unless the latter had developed in a diverticulum of the right tube, and there was no evidence of that. I therefore believe that it was a case of external migration of the ovum; that the ovum went from the left ovary to the fimbriated extremity of the tube on the right side; that it would have gone down into the uterus, except that it was stopped by the mummified fetus. The case was interesting to me, as I had seen two others in which there had been external migration of the ovum. The occurrence of this form of crossing is much more in doubt than the other or internal crossing. One or two cases have been reported, but strict proof is extremely difficult to obtain. The best proof of migration of the ovum is found in experiments upon animals. For instance, the tube on one side and the ovary on the other have been excised, yet pregnancy has then occurred, showing that migration may take place. Then there were the beautiful experiments of Pinner, of Freiburg, made some years ago, whereby he showed that on introducing powdered cinnabar into the peritoneal cavity it would in a short time appear in the tube, and a little later in the uterus, and still later in the vagina, showing that there are currents or waves carrying objects to the fimbriated extremity of the tube and on down to the uterus.

DR. ARTHUR W. JOHNSTONE, of Cincinnati.—Dr. Williams' closing sentence, to the effect that the ovum is taken up and wafted by a current across to the other tube, I do not believe to be exactly correct. I believe the manner in which the ovum reaches the opposite tube, when it cannot pass down its own, to be that the fimbriated extremity of the opposite tube reaches over and takes it up. I recently had a case in which the tube was almost caught in this acrobatic performance. The pelvis was found almost completely sealed on one side by repeated attacks of pelvic inflammation. There had been a recent attack with fresh bands thrown out, and it was found that these had caught the extremity of the tube from the opposite side, which evidently had reached over to take up the ovum from the side on which the tube was embedded in adhesions. On lifting up the tube on the comparatively healthy side, and looking for its extremity in front where we ordinarily find it, it was not there,

¹ See original article, p. 855.

and after considerable search it was found behind the uterus, where I had already just removed the opposite ovary. It seemed to have reached over just at a time when sufficient fresh lymph exudate had been thrown out to catch it and hold it there.

I believe, then, that it is not a crossing of the ovary, but a crossing of the tube; and that the act is not one of accident, but a provision of Nature—a compensatory action, as it were, by which, when one tube is hampered, the other will reach across behind the uterus, catch the Graafian follicle, surround it, and carry the ovum down into the uterus.

DR. GEORGE M. EDELOHLS, of New York, asked Dr. Johnstone whether the tube was free, and remarked that he had three times found the tube in exactly the same position—namely, reaching across behind the uterus; but it was fastened in those cases by adhesions.

DR. JOHNSTONE said the adhesions retaining the opposite tube were very fresh in his case.

DR. WILLIAM H. WATHEN, of Louisville.—I am certainly interested in the conclusions of Dr. Johnstone, but I fail to agree with him. It would seem impossible for the tube, four inches in length, to get behind the uterus over to the opposite ovary and bring itself in relation to the ovum on that side. There must be some disease of the pelvic structures to bring the tube around in that direction. What Dr. Johnstone has described is a condition very often met with in laparatomies. We all know that the tubes become obstructed, become twisted about, and may be found behind the uterus or even down in Douglas' pouch. Indeed, we seldom find the tube in exactly the normal position when there is inflammation of the peritoneum. There is no reason why a pathological change could not produce exactly the change which the last speaker has described as physiological.

With regard to the primary operation in ectopic pregnancy, treated of in Dr. Lusk's paper, I have had no experience with cases at or near term, but I removed, about three years ago, a specimen advanced nearly as far as the one Dr. Lusk exhibited. It was photographed, and a drawing published in the *New York Medical Journal*, showing the fetus, placenta, cord, tube, etc. In that instance the hemorrhage was slight. There was no difficulty in separating the adhesions and ligating the sac, including in a single ligature the distal and proximal structures of the ovarian artery.

DR. J. W. WILLIAMS, of Baltimore.—The suggestion which Dr. Johnstone has made with regard to the tube reaching over to the opposite side was first advanced by Ruge some forty or fifty years ago, but has been rejected by most observers. I see no reason for supposing such preternatural instinct on the part of the tube, when we know by experiment that powdered ma-

terial put into the peritoneal cavity gets into the uterus in some other way.

DR. M. D. MANN, of Buffalo.—In connection with Dr. Coe's case, I wish to put on record one of ectopic pregnancy in which I operated about the second month and found that the corpus luteum was in the opposite ovary.

DR. W. M. POLK, of New York, being called upon, said: With regard to Dr. Lusk's paper, I think the doctor acted very properly in taking out the products of the conception, and I know of no better way to treat these cases. As to the various modes of operating, they are only under consideration; but as to the indications for interference, it seems to me Dr. Lusk has taken the correct stand, and I commend the closing sentences of his paper.

DR. R. STANSBURY SUTTON, of Pittsburgh, read a paper on
THE ELASTIC LIGATURE VS. THE WIRE SERRE-NEUD IN SUPRAVAGINAL HYSTERECTOMY.¹

DR. H. J. BOLDT, of New York, read a paper on

THE OPERATIVE TREATMENT OF UTERINE FIBRO-MYOMATA.²

(To be concluded.)

ABSTRACTS.

1. KLEINWÄCHTER: THE BIOLOGY OF UTERINE FIBRO-MYOMATA (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band XXV., Heft 2).—The great frequency and the exceedingly scanty literature devoted to the biological study of these cases (except the papers of Gusserow, "Die Neubildungen des Uterus," Stuttgart, 1886, S. 26; *Deutsche Chirurgie*, Lieferung 57, 2. Auflage; and Schorler, *Zeitschrift für Geburtshülfe und Gynäkologie*, Bd. xi., S. 140; the author knows of no works discussing the biology of uterine fibroids) prompted Kleinwächter to an investigation, the results of which are given in this paper. The author relates the clinical histories of forty cases subjected by him to repeated careful examinations, and based upon these investigations he states his conclusions. Old, time-honored theories about the generally slow growth of uterine fibroids, and that they remain stationary or undergo a retrogressive metamorphosis at the menopause, are upset by the author's investigations. He says: I find, as a rule, fibroid tumors of a rapid growth (thirty-six out of forty cases), and only exceptionally is their development a slow one (four out of forty cases). Sometimes, after re-

¹ See original article, p. 866.

² See original article, page 832.

remaining stationary for a long time, they suddenly commence to grow, without a coexisting pregnancy, and in a short time they can attain a colossal size. An arrest of growth, or even diminution in size, is rarely observed before the advent of the climacterium, and if it occurs it is generally brought about by the administration of ergotin.

Cases are met with in which pregnancy occurs in a uterus containing one or more fibroids. Inasmuch as they are structurally similar to the uterine walls, they partake of the growth of the uterus and their size rapidly increases. They again share in the involution of the uterus after delivery, and may disappear entirely. Small pedunculated, submucous or interstitial tumors frequently precede the development of large fibro-myomata, and the removal of fibrous polypi is often followed by the appearance of new ones. He explains this that there are a number of minute tumors simultaneously present which develop at intervals and grow to appreciable size. The menopause does not always check the growth of fibro-myomata—sometimes they even grow more rapidly, and a malignant degeneration at this time is not so very infrequently observed.

It is a difficult task to give exact reasons why in one patient fibroids are of slow growth, while in others, after having remained stationary for a long time, they should, without appreciable cause, rapidly increase in size. The predominance of connective or muscular tissue (Gusserow) is possibly responsible for this seemingly erratic phenomenon, but an increased blood supply, provided by the blood vessels of new-formed pseudo-membranes, and inflammatory processes at the periphery or in the muscular walls of the uterus, are believed to be not unimportant factors.

J. R.

2. DÜNHOF: THE INFLUENCE OF CHLOROFORM UPON THE COURSE OF NORMAL LABOR, AS SHOWN BY THE TACHADYNAMOMETER (*Archiv für Gynäkologie*, Bd. xlii., Heft 2).—The author administered chloroform in various degrees to five cases of normal labor, and noticed its influence upon the expulsive force of the uterus and abdominal muscles, as shown by a carefully constructed physiological apparatus. The conclusions reached are in substance the following:

1. The administration of chloroform, even in diminutive doses, exercises a retarding influence upon the progress of labor. The muscular pressure sinks to one-half of the amount of that present before the administration of the anesthetic. In eight observations the average figures were 13:7.

2. The expulsive force of the uterine contractions steadily diminishes during the exhibition of chloroform.

3. The labor pains, besides being weaker, are also more irregular during a slight anesthesia. During deep anesthesia the intervals between the pains are longer and all the pains are diminished in strength.

4. The pains increase immediately after discontinuing the anesthetic. The expulsive force of the contractions after stopping the chloroform, compared with the force just before its administration, is, as expressed in figures, 2:3.

5. The labor pains generally continue diminished in power for some time after discontinuing the chloroform. In one case they had resumed their normal intensity in ten minutes, while in two other cases two hours had expired.

6. If the action of the abdominal muscles is only slight, this action is checked entirely by a superficial anesthesia, but soon reappears after the stopping of the chloroform.

7. The action of the abdominal muscles continues, but in diminished force, during superficial anesthesia, if before the exhibition of the chloroform it was vigorous in character.

8. Deep anesthesia abolishes entirely the action of the voluntary muscles.

9. The intervals between the pains become longer immediately after chloroform is administered, and the labor pains, besides being less intense, decrease in numbers about twenty-five per cent.

These carefully conducted experiments show that chloroform, no matter in what degree it is administered, exercises a retarding influence upon the progress of labor. The expulsive forces are lessened and there is no corresponding diminution of the resistance.

J. R.

ITEM.

THE SECTION ON OBSTETRICS OF THE PAN-AMERICAN MEDICAL CONGRESS OF 1893, of which DR. GILES S. MITCHELL, 277 West Eighth street, Cincinnati, O., is Executive President, and with the Honorary Presidents as published in this JOURNAL for December, 1892, cordially invites all members of the medical profession interested to attend its meetings, to be held at the corner of F and Fourteenth streets, N. W., Washington, D. C., on September 5th, 6th, 7th, and 8th, 1893. It is desirable that those who wish to read papers before the Section should name their titles before July 4th to the secretaries, who will cheerfully give any information required.

DR. HUGH HAMILTON,
English-speaking Secretary,
212 South Second St.,
Harrisburg, Pa.

DR. JOHN J. CASTELLANOS,
Spanish-speaking Secretary,
70 Orleans St.,
New Orleans, La.

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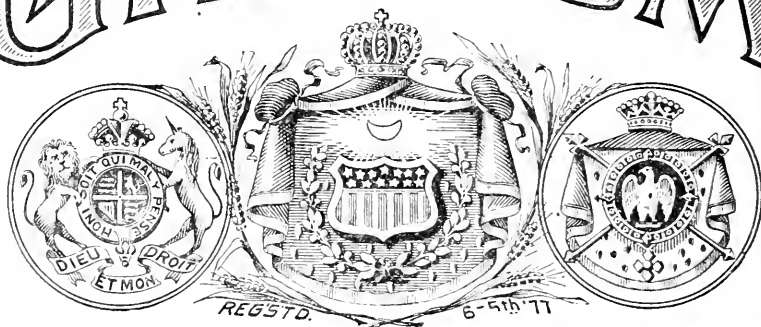
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